Study on Weekly Oil Reporting

Final Overall Report

July 2010

Prepared for the Directorate-General for Energy
of the European Commission

KLC
law firm

Mott MacDonald

Study on Weekly Oil Reporting

Final Overall Report

July 2010

Prepared for the Directorate-General for Energy of the European Commission

Mott MacDonald, Mott MacDonald House, 8-10 Sydenham Road, Croydon CR0 2EE, United Kingdom
T +44(0) 20 8774 2000 F +44 (0) 20 8681 5706 W www.mottmac.com

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
0	12 March 2010	ST	TM	AMS	Draft Overall Report
A	14 April 2010	ST	TM	AMS	Final Overall Report
B	1 June 2010	ST	TM	AMS	Final Overall Report
C	26 July 2010	ST 	TM -electronically-	AMS 	Final Overall Report

Mott MacDonald, Mott MacDonald House, 8-10 Sydenham Road, Croydon CR0 2EE, United Kingdom
T +44(0) 20 8774 2000 F +44 (0) 20 8681 5706 W www.mottmac.com

Content

Tables

Figures

Executive Summary

The objective of the "Study on Weekly Oil Reporting" (WOR) has been to assess the **feasibility of establishing a weekly commercial oil stocks reporting mechanism in the EU.**

The study has been undertaken in six work packages (WP), as listed below:

- WP1: Expected benefits and possible impacts
- WP2: Institutional framework
- WP3: Legislative/regulatory environment
- WP4: Technical and methodological scenarios
- WP5: Financial conditions
- WP6: Agenda and action programme

Weekly Oil Reporting is currently done in both the US and Japan. One of the reasons for proposing it is therefore to bring the EU reporting in line with these countries, which are the two largest oil consumers in the world at the present time.

In July 2008 the ECOFIN Council reached a political agreement on "publishing information on oil stocks on a weekly basis" in order to improve the transparency of commercial oil stocks, according to the terms of reference for this study. It is important to bear in mind that at that time oil prices were very high – more than $140 per barrel – and the reasons for the massive increase in prices during 2008 were unclear. There was considerable concern about the impact of speculators, for example.

Since the beginning of the feasibility study in August 2009 world oil prices have been much more stable and generally in the range $70 - $80 per barrel, which is about half the 2008 peak. The concerns about lack of transparency and the impact of speculators appear to have diminished.

In the EU at the present time the main emphasis is on monthly reporting (MOR), particularly of emergency oil stocks. All Member States (MS) send Monthly Oil Statistics (MOS) reports to Eurostat. Nineteen of the twenty seven MS submit data to the International Energy Agency (IEA) the MOS and Joint Oil Data Initiative (JODI) reports. Monthly data on emergency oil stocks are also sent to the Market Observatory for Energy (MO).

Because of the commingling practice, some MS report the totality of oil stocks, rather than emergency stocks only. In addition some MS collect and publish other oil and energy statistics for their own purposes, often on an annual basis.

One of our main tasks has been to assess whether or not the existing systems for monthly reporting could be adapted to enable weekly reporting as well. **It is intended that the WOR would be in addition to the existing reports and not replace them**. During the first part of the study we consulted as widely as possible among the oil industry, including relevant government bodies in the MS and the international agencies involved such as Eurostat, the Market Observatory and the IEA.

The methodology we chose to use was a standard version of cost-benefit analysis. We identified the possible costs and benefits of introducing weekly reporting in the EU and endeavoured to quantify them as best as possible. The detailed analysis of these benefits was given in WP1. Our modelling largely concentrated on the actual experience of weekly reporting in the US, although where possible we tried to transpose that to the EU context. In particular, **we undertook a detailed analysis of oil price volatility but concluded that weekly reporting would have no significant impact in reducing price volatility.**

Nevertheless, there would be benefits from introducing WOR but on a relatively small scale. Our analysis shows that WOR in the EU would result in **improved market transparency**. The industry – or "the market" – pays much more attention to the weekly statistics in the US than is justified by their 23% share of world oil demand. One of the reasons for that must be the absence of comparable statistics from other important oil consumers such as the EU and China.

The weekly oil stocks statistics in the US are widely regarded as a proxy for demand. However, the US is not representative of world demand trends, particularly in comparison with high growth countries such as China and India. Our analysis in WP1 also shows significant differences between energy consumption trends in the EU and the US, and accurate WOR in the EU should be able to provide valuable information on those differences.

We concluded that it was not appropriate for us to put a monetary value on the benefits identified in WP1 because that is a very subjective exercise.

Regarding the costs, we are confident that our estimates are sufficiently accurate in the context of the study. The estimated costs of WOR are set out in the WP5 report. They vary from scenario to scenario but **our "best estimate" is an aggregate annual operating cost of about €6 million.**

In WP1 we recommended six scenarios for more detailed analysis, as set out below:

Three-tier system	Two-tier system with existing organization	Two-tier system with new organization
Maximum data	Maximum data	Maximum data
Minimum data	Minimum data	Minimum data

In WP4 we concluded that the three maximum data scenarios were not feasible in the EU at the present time, because of the extent of the data required and the existing collection and analysis arrangements. Subsequent work therefore concentrated on the three minimum data scenarios.

The key difference between the existing systems in the US and EU is that the former has two tiers (oil industry and statistical agency) and the latter three tiers (oil industry, governments/member states and statistical agency). In the US the Energy Information Administration (EIA) collects the statistics directly from the oil industry. In the EU, MS collect the statistics from the industry, process and analyse the data, and then forward it to Eurostat, the IEA and the MO.

We undertook a detailed analysis of the data systems and the timescales involved. **We concluded that it was feasible to accommodate WOR with the three-tier minimum data scenario.** In addition we have made some recommendations for speeding up and automating the processes of data collection and analysis. We have also recommended a pilot exercise, to assess the difficulties in practice and how they could be overcome or minimized.

Data quality was raised as a major concern. However, we have concluded that this could be partially mitigated with an adequate set up. We recommend collecting the data directly at the operational level. We identified oil depots/refineries as the appropriate reporting entity for WOR. This approach has the advantage of guaranteeing the confidentiality of the commercial strategies of the operators. It is also important to set up a semi-automated process to capture, verify and protect the data.

The institutional, legal and administrative implications of a two-tier system were discussed in the WP2 and WP3 reports. From an institutional standpoint, the adoption of the three-tier system for WOR will not necessitate major institutional changes; however it will require amendments in the EU and Member States' legislation. Alternatively, the introduction of the two-tier system can be implemented either with an existing EU body at the top tier, or by establishing a new one (i.e. Monitoring Centre for Oil and Oil Products).

We concluded in WP3 that there were no legal barriers for introducing WOR in the EU through employing any of the three minimum data scenarios. That being said, from the legislative point of view, establishing WOR in a three-tier setting through the comitology procedure is the most appropriate.

In conclusion, **from the institutional and legal viewpoints it is more relevant to implement a three-tier WOR reporting system**. The recently adopted Directive 2009/119/EC already proposes steps to implement monthly reporting of commercial oil stocks with a three-tier system. By 31 December 2012, the Member States have to transpose the Directive 2009/119/EC and the comitology procedures is expected to provide for rules and procedures for reporting commercial oil stocks, including the possibility to amend the MOR to WOR.

However, **from the financial and technical viewpoints, the two-tier minimum data scenario is the preferred option** as it could theoretically enable a faster data collection compared to a three-tier system by bypassing the MS.

1. Introduction to overall report

The potential for weekly oil stocks reporting in the European Union (EU) has been discussed for many years. However, when oil prices reached $140 in 2008, Member States (MS) finance ministers decided that measures should be taken to increase transparency in the oil markets. In particular, in July 2008, in view of improving the transparency of commercial oil stocks, the ECOFIN Council reached a political agreement on "publishing information on oil stocks on a weekly basis" (cf. Terms of Reference).

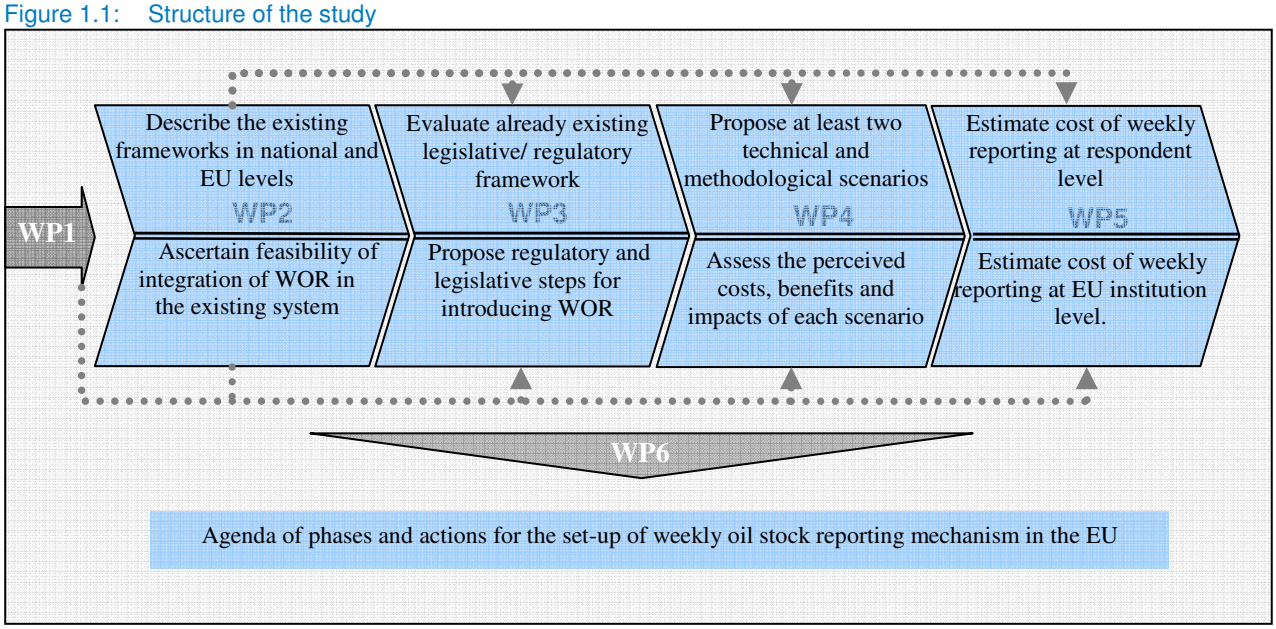
On 22/04/2009 a proposal for a Council Directive was raised with a view to modify Council Directive 2006/67/EC, imposing an obligation on MS to maintain minimum stocks of crude oil/petroleum products. Originally, this was to include the obligation for weekly reporting of commercial oil stocks but it was changed to monthly reporting (MOR) because of concerns raised by MS regarding the feasibility of reporting weekly.

Subsequently, the Directorate-General for Energy (DG ENER, formerly DG TREN) commissioned a feasibility study and the consortium, consisting of Mott MacDonald Limited (MML) and KLC Law Firm (KLC), was appointed to:

- Identify the modalities of establishing weekly commercial oil stocks reporting mechanism in the EU
- Evaluate the costs and benefits thereof, and
- Gauge the extent to which such initiative would represent a net contribution to the aim of improving oil data transparency, thus contributing to better market functioning.

The study was divided in six work packages (WP). We have summarized the flows of information among the different work packages in the chart below:

Figure 1.1: Structure of the study



Source: Terms of Reference and team analysis

The purpose of this overall report is to present in an integrated approach our analysis and findings and to provide summary details on each WP.

We are very grateful for all the assistance we received during the study from the various organizations and individuals we consulted. However, we would like to stress that the views expressed in this report are those of Mott MacDonald and KLC, unless clearly indicated otherwise.

2. Oil stocks reporting mechanisms

The dynamics of oil stocks play an important role in price formation. In particular, changes in the levels of crude oil and product stocks are a very important source of information, influencing both short term oil prices and the shape of the forward price curve. Data on oil stocks gives indications to market participants on supply-demand fundamentals in the short to medium term.

The availability of good and timely data on stocks is therefore important. **Currently, only the United States (US) and Japan publish comprehensive weekly data on petroleum stocks.** In the EU, oil stocks data is generally published on a monthly basis by various organizations. Each organization has a different coverage and therefore publishes a slightly different set of stocks data.

We identified four bodies publishing oil stocks data in the EU:

- **The International Energy Agency** (IEA) publishes a monthly report called the Oil Market Report (OMR). Although it is not a European publication, it provides statistical data on oil stocks in the OECD countries, in particular industry stocks and government-controlled stocks. However, the stocks data is generally published with a lag of three months. The latest version of the OMR is not freely available and the IEA offers two different subscriptions services. In addition to the OMR the IEA offers a subscription to the Monthly Oil Data Service (MODS) which provides a detailed database of historical and projected information used in preparing the IEA Oil Market Report. Note that there are about 400 paying subscribers to the OMR. Nevertheless, member governments receive the OMR and data free of charge, so there are many more than 400 copies produced each month.
- **Eurostat** publishes a bulletin "Energy-monthly statistics" on its website including EU oil stocks data for the 27 European countries with a four month lag. In addition, it publishes the Joint Oil Data Initiative (JODI) and Monthly Oil and Gas Statistics (MOS) data. This data is collected from the member states through JODI questionnaire. The deadline for the submission is the 25th of each month. The database on the Eurostat website is supposed to be updated on a country by country basis as soon as the data is processed and checked by Eurostat. Reporting in accordance to JODI Questionnaire refers to closing stocks, which represent the primary stock levels at the end of each month within national territories; including stocks held by importers, refiners, stock holding organizations and governments. Primary stocks include both: a) Government controlled stocks (stocks exclusively for emergency purposes, owned by governments and organizations established to hold stock) and b) Industry stocks (stocks owned by oil companies, traders and other organizations, including stocks held by the industry to meet IEA, EU and national emergency reserve commitments).
- **Market Observatory for Energy** (MO) publishes monthly data on oil stocks with a lag of a few months and quarterly reports covering consumption and stocks. Note that according to the Council Directive 2009/119/EC of 14 September 2009 mentioned above, statistical summaries on emergency stocks must be submitted to the Market Observatory within 55 days of the end of the month to which they relate.
- **Euroilstock** publishes two reports, an inventory and a refinery report, respectively on the 7th and 15th of each month. It publishes statistics on the level of stocks held by the industry, refineries intake, net refineries output and refineries utilization rate. Approximately 80 companies participate at present. Most have done so since 1985 but there have been changes among the participants. Note that some independent refiners have chosen not to participate. All individual company data is strictly confidential - "blinded" - and is not disclosed to any other parties. Data is collected from 15 countries and 6 products are reported. As two reports are produced each month, 180 data points are analysed. The reports are only available to members and subscribers of Thomson Reuters, who advised us they had about 10,000

subscribers to their commodities service and 50,000 to their wider service, all of whom have access to the monthly Euroilstock reports.

Unlike in the US and Japan, data collection systems in the EU are generally three-tier systems. Ministries and/or state agencies of the MS collect the statistics from their respective oil industry – the oil companies, refiners, storage companies and others. Those statistics are then processed and questionnaires, such as MOS and JODI, are completed before being forwarded to the IEA and Eurostat. The "Emergency Stocks" questionnaire is sent to the Market Observatory, which is a part of DG ENER.

The Euroilstock system, however, differs from others. The final respondents are the 80 member companies, except in countries such as France where the “Energy Ministry” collects the data from the oil companies and forward it to Euroilstock. In fact, respondents send their inputs to the audit, tax and advisory services company KPMG who process and analyze the data on behalf of Euroilstock and produce the final inventory and refinery reports.

In addition, stockholding practices in Europe differ from the US and Japan. The US and Japan hold government-owned stockpiles, which are stored separately from the commercial oil stocks. In contrast, MS in the EU can impose obligations on economic operators to maintain a minimum level of emergency stocks. In countries where emergency stocks are maintained at least partly by economic operators on behalf of public administrations, they are generally held in the same physical location as their commercial stocks.

This practice is known as ‘commingling’. It explains why some companies and subsequently some countries report their total stocks, including commercial stocks, and not just the compulsory or minimum stocks to the national administrations.

As mentioned, stocks data is collected by MS from oil companies. Each MS has its own questionnaire for data collection. The data collected is then used to provide mandatory information to the IEA, Eurostat and the Market Observatory, but also to produce other information and national statistics.

The current questionnaires are designed to monitor the level of emergency stocks held by each obligated company and to ensure that stocks are available in the case of a disruption of oil supplies. The Council Directive 2009/119/EC of 14 September 2009, imposes an obligation on MS to maintain minimum stocks of crude and/or petroleum products. This obligation is in general partly transferred to economic operators at MS level. However, MS do have the right to delegate those obligations.

The monthly questionnaires incorporate information on ownership and reflect the different arrangements possible (stocks loan, borrowing, ticket arrangements, etc) and therefore present a detailed situation of the “emergency stocks” position in each company. The information is aggregated at country level by the relevant ministries in MS and subsequently transferred to the relevant international organizations.

Whilst the purpose of MOR is to monitor the level of emergency stocks owned by obligated entities, WOR would be implemented to provide more timely information to the market participants on the level of commercial (i.e. non-emergency) crude oil and product stocks in the MS followed by

aggregation at the EU level. Currently, WOR in the US and Japan only covers about 30% of the global market. Similar weekly reporting in the EU will increase that figure to about 50%.

The information on oil stocks alone does not provide a complete picture of oil market supply-demand balance. We therefore recommend that, in case of implementation of WOR in EU, some additional data is included in the reporting system, for example refinery data.

3. Analysis of the feasibility of introducing WOR

3.1 Benefit analysis

One of the main purposes of the study was to assess the benefits of WOR. This was completed in WP1. Based on a theoretical approach, we identified and investigated a range of potential expected (but not guaranteed) benefits for WOR in the context of oil markets:

- Reduced price volatility
- Lower oil prices
- Improved market transparency
- Better oil policies
- Greater profits for oil traders

One of the main challenges in the current feasibility study was to assign monetary values to these benefits. Ex-ante benefits, tangible or intangible, arising from reporting were found often difficult, if not impossible, to quantify before actually implementing them. However, we attempted to mitigate this concern by distinguishing two separate categories, namely ”quantifiable” and “non-quantifiable” benefits. For instance, impacts on price, volatility and profits from WOR were regarded as “quantifiable” variables, whereas improved market transparency and better oil policies were regarded as “non quantifiable” variables.

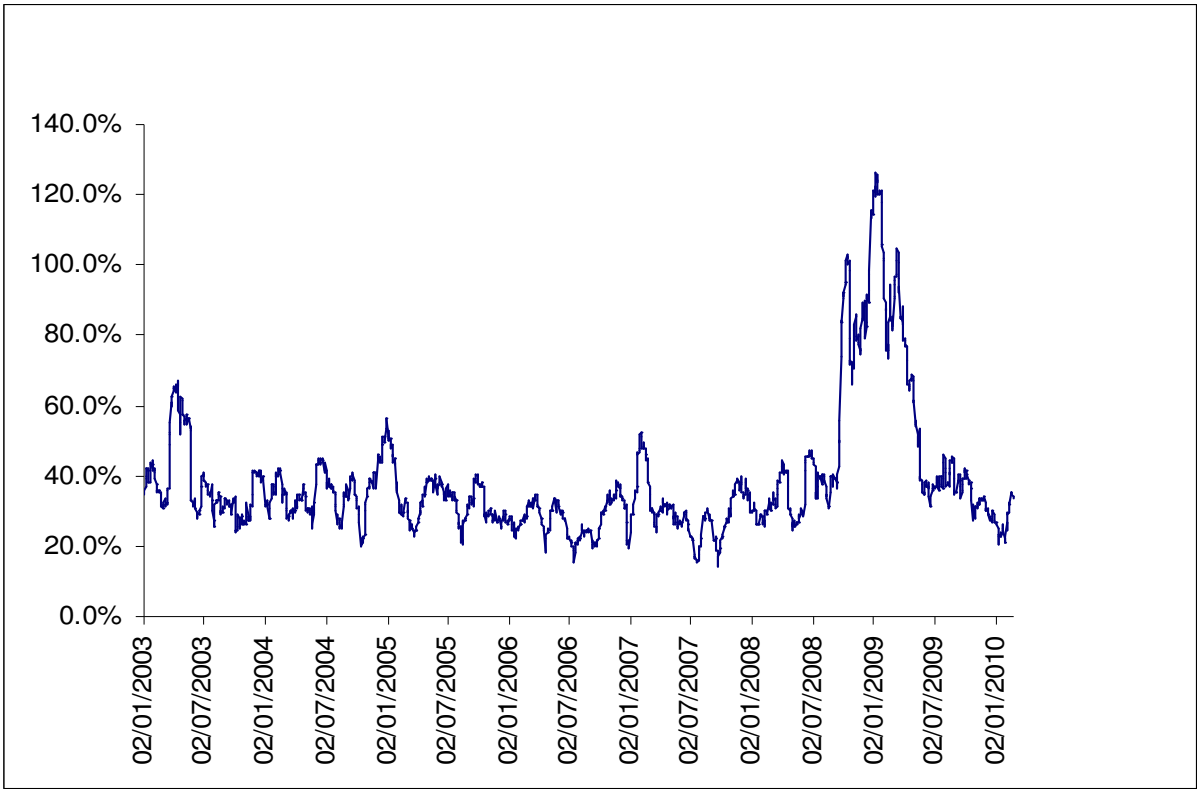
3.1.1 Assessing the “quantifiable” benefits

3.1.1.1 Impact on price and volatility

To begin with, we measured the impact of WOR on oil prices and volatility. In WP1, we defined volatility as a characterisation of price changes over time and demonstrated that oil markets exhibited an inherent level of volatility. Between April 1983 and February 2010, the one month rolling average annualized volatility of NYMEX Light Sweet crude oil’s first-month maturing contract oscillated around 34% (cf. Figure 3.1). In 2008-2009 it surged to more than 80%. Although the oil market witnessed several episodes of surging volatility, these episodes were related to major structural changes and geopolitical shocks such as the collapse of the OPEC-administered pricing system and the adoption of a market-linked pricing mechanism in 1986 or the first Gulf War in 1990-1991.

However, the increase of volatility in 2008 occurred at a time of relative political stability and without any significant supply disruption, despite the world facing a major financial crisis. As a result, this triggered a debate on ‘price formation’ between two arguments – ‘fundamentals’ and ‘speculation’ - which is still not settled. For a brief discussion on oil price formation, please refer to WP1 report Appendix A.

Figure 3.1: One month rolling average annualized daily volatility



Source: EIA, Team analysis

In the context of this study, we chose a global approach to analyze the relationship between WOR, i.e. information on stock level changes and oil prices or volatility. We used an advanced econometric model called Vector Autoregression (VAR) on historic weekly data of crude oil (WTI), US heating oil and gasoline markets. Our VAR model included the volatility, the spot price, the convenience yield[1] and the oil stocks as endogenous variables. Our approach was based on Pindyck's model of volatility and commodity price dynamics (Pindyck 2001)[2]. Pindyck also included the US Treasury bill rate, the Baa corporate bond rate, the exchange-weighted USD value and monthly seasonal dummies as exogenous variables to better represent the main characteristics of the input variables in the model.

The model results enabled us to assess:

[1] Difference between front month futures and spot price adjusted for interest charges and storage costs.

[2] Pindyck R.S.(2001) Volatility and Commodity Price Dynamics. Centre for Energy and Environmental Policy Research, MIT, USA.

1. Whether oil stocks had significant predicting power over weekly price volatility and front month futures prices. A significance test (F-Statistics) on the model rejected any predictive power of stocks over price volatility of crude oil.

2. How shocks in oil stocks could impact oil price volatility and futures prices in the complex dynamics of cash and future commodity markets. Among other market possibilities, it may be assumed that such a shock occurs when market participants discover new information on stocks data on a given date and adjust their positions on stocks almost immediately. We then used the VAR summary statistics such as Granger Causality tests and impulse response plots, which are well-accepted and widely used methods, to assess the possible impacts.

The results of the modelling showed that:
- WOR was unlikely to lead to lower volatility. Therefore we concluded that reduced price volatility would not be a benefit of WOR.
- WOR could have an impact on the short run market dynamics – driving prices either down or up; however, it would not result in lower prices on a long term basis.

3.1.2 Assessing the "non-quantifiable" benefits

3.1.2.1 Improved market transparency

The main benefit we identified was improved market transparency. Timely disclosure of complete, up-to-date, quality information, as well as detailed historic information and statistics contribute to market transparency and market efficiency. Short-tem oil prices are currently heavily influenced by the US weekly publications which do not necessarily reflect the supply and demand fundamentals in Europe and elsewhere. In particular, physical oil traders/importers in the EU are particularly affected as the day-to-day price at which they buy/import oil in the EU does not necessarily reflect the EU market fundamentals and they face price fluctuations related to US market fundamentals. Therefore, it is not surprising that they manifest interest for WOR.

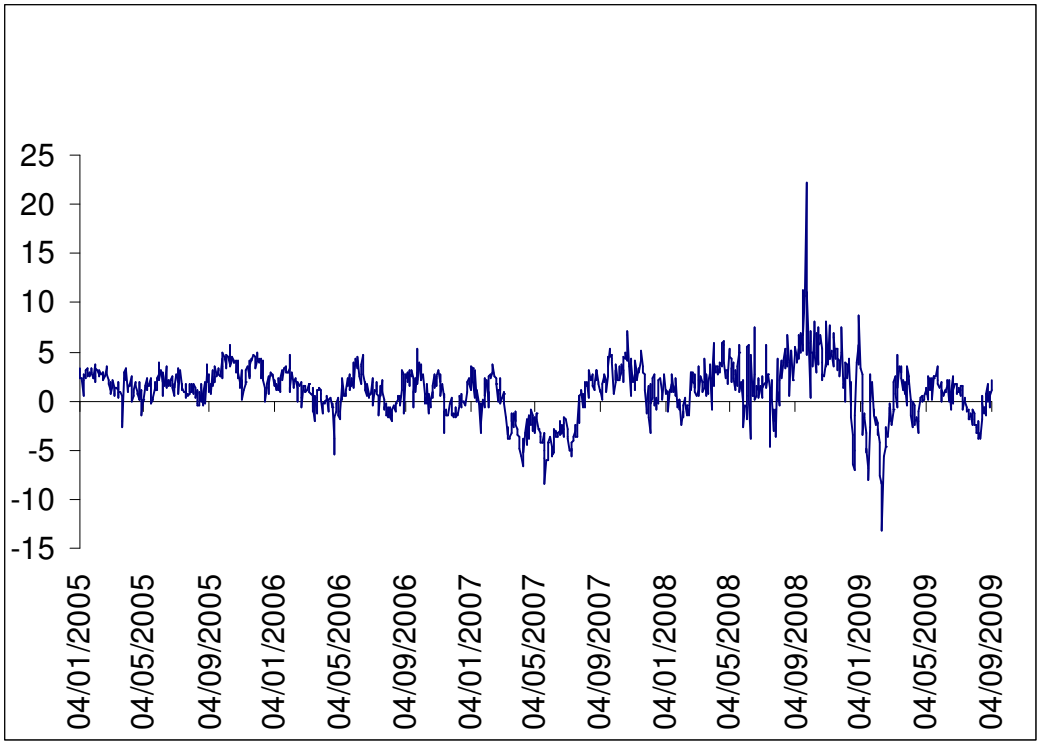
In general terms, more up-to-date statistics available on the EU market, supposing they are accurate, serve a general, routine function of making petroleum markets more transparent. In theory, as explained previously, transparent markets tend to function more efficiently with regard to maintaining adequate supplies and setting prices. Everyone should benefit from data availability:
- The oil industry can plan operations in a manner to maximize their return on investment. Typically refineries can monitor output designated for local consumption and have also the ability to make quicker marketing and commercial policy adjustments. For example, of late, weekly data showing sluggish US oil demand and high petroleum product inventories has prompted several US refiners to curtail refining operations;
- Governments/agencies can better monitor the oil markets;
- Analyst/traders can incorporate more timely data in their models which can help them implement more efficient trading strategies.

In our analysis in WP1, we pointed out some significant divergences between the US and the EU. In particular, on a long term horizon, trends in consumption and in refining differ. For example, oil consumption is currently declining in the EU as a whole but rising in the US.

In the EU diesel and gasoil imports have increased, mainly from Russia, while the gasoline surplus in the EU is exported to North America. This indicates that the US oil market is not necessarily a good proxy for the EU.

In addition, we identified that the volatility of the price differential between WTI and Brent (WTI-Brent spread), the main benchmarks of the current oil pricing system, had surged in the last two years. In particular, the differential reached a peak of $22.18 on September 22, 2008 (see Figure 3.2 below). This observation does not necessarily imply that the oil market does not function well.

Figure 3.2: WTI-Brent differential ($/barrel)



Source: EIA, team analysis

Nevertheless, it reflects serious dislocation between different segments of the oil markets and in particular the US and EU oil markets. We identified that as an incentive for the EU to increase data availability. In particular, data on crude oil stocks and products is published monthly in the EU with a considerable lag, whereas it is made available to the market on a weekly basis in the US. As information on stocks plays a role in oil price formation, influencing expectations of short to medium term market fundamentals, efforts to improve stocks data availability will increase market transparency and market functioning in the EU and

globally, although the influence on oil price behaviour is likely to be limited. Indeed, oil prices are formed on the basis of a complex set of expectations. Although oil data influences expectations, data on oil stocks in the EU is only one key statistic, among supply, demand and other statistics. Regarding data on stocks, note that OECD data is published monthly by the IEA, but with a significant lag (3 months), whereas non-OECD stocks data is not available on a regular basis and often subject to speculation. China is probably the best example of that.

3.1.2.2 Better oil policymaking

From our stakeholder consultations **we concluded that oil policies are usually based on longer term trends and that weekly changes are largely irrelevant for the policymakers.** Most policy makers are of the opinion that considerable attention is paid to publications such as the IEA's monthly Oil Market Report and Medium-Term Oil Market Report but did not arrive at any consensus that weekly statistics would be beneficial to them.

3.1.2.3 Greater profit for oil traders

Because there is support from this part of the industry for WOR in the EU, there were suggestions that the traders might benefit through greater profits for themselves. During the study, we identified an interest for WOR and a potential demand from analysts, traders and data providers such as Thomson Reuters and Bloomberg for weekly EU statistics. However, we did not see any strong evidence that the traders as a class of actors would make bigger profits.

3.2 Scenarios and risk analysis

The costs of implementing WOR were estimated for different classes of participants in the process.

3.2.1 Data reporting scenarios

In order to estimate the costs of a potential WOR reporting mechanism in the EU, we began with evaluating the existing institutional framework and the legislative/regulatory environment, as well as existing reporting systems. Subsequently, we identified potential scenarios of reporting, based on constraints on timeline, data coverage and administrative burden over data collection and publication in a potential WOR in the EU. We assessed all possible scenarios (refer to WP1 and 4) before narrowing down them into the **three** most promising ones, i.e. the minimum data scenarios. Table 3.1 lists the range of scenarios where items, in **bold**, represent the scenarios we selected for the detailed costs analysis.

Table 3.1: Scenarios

Three-tier system	Two-tier system with existing organization	Two-tier system with new organization
Maximum data	Maximum data	Maximum data
Minimum data	**Minimum data**	**Minimum data**

Source: Team analysis

The Maximum data option refers to a set of data similar to the Monthly Oil Statistics (MOS) return questionnaire which Member States submit to Eurostat and/or the International Energy Agency (IEA). It constitutes a complete oil balance including detailed information on oil products categories and flows such as transfers, direct use, etc.

The Minimum data option refers to a set of data similar to the JODI (Joint Oil Data Initiative) questionnaire, which is managed by the International Energy Forum (IEF). It provides information in a simple balance on production, imports, exports, demand and stock levels for crude oil and key products.

3.2.2 Requirements and methodology

In the EU, the process of oil stocks reporting differs from country to country and is sometimes integrated in a complex process of oil data collection.

Given the different purposes of the monthly emergency oil reporting system and that of the proposed weekly commercial oil stocks reporting system, we propose to implement WOR in parallel with monthly emergency reporting. We discussed and analysed extensively the coverage of WOR in the US, Japan and the EU in WP3 and 4 and proposed the implementation of a minimum data scenario for WOR in EU. The weekly data collection system should cover information on stocks (crude oil & petroleum products) and refinery activity (utilization rate, intake & output). We proposed to use either JODI's or MOS's definition for stocks. The underlying information collected from the oil industry can be then be collated at the MS and EU level and published by the EC with time-series charts and with comments on a weekly basis.

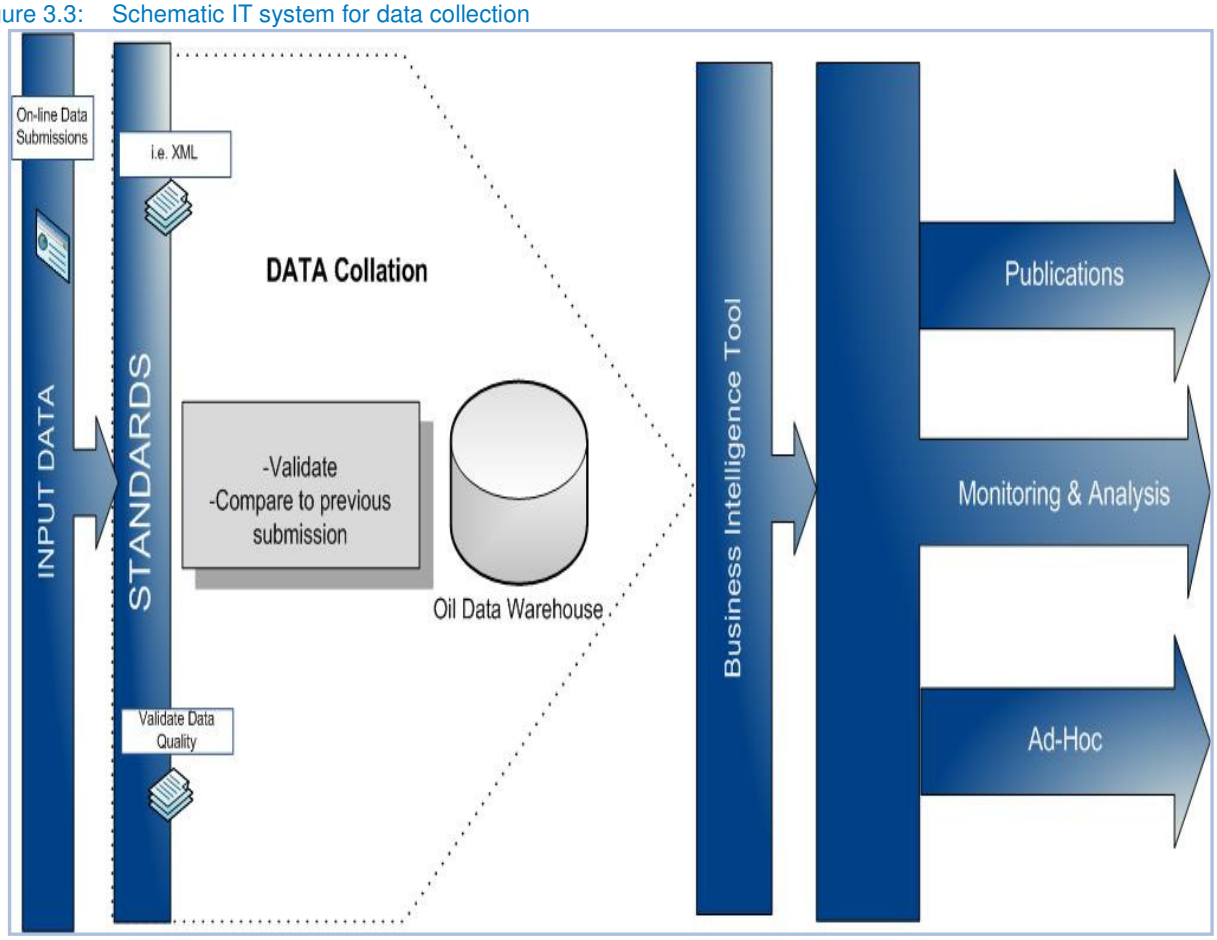
Data could be directly collected at the operational level, in particular from oil storage depots and refineries. We identified oil depots/refineries as the appropriate reporting entity for WOR. Oil depots managers/owners have ready access to information on the level of oil stocks in their depots. If depot owners have several depots it would be appropriate to submit aggregated information.

Collecting information at the operational level, as is done in the US, would speed up the reporting process. It would also have the advantage of guaranteeing the confidentiality of the commercial strategies of the owner as its identity would not be divulgated. Indeed oil companies have their oil products spread over different oil depots/storage facilities. However, collecting information from operators would multiply significantly the number of final respondents and therefore we recommend that the process of data collection is automated. This could both enable to streamline the reporting process and to obtain a good quality control of the information collected.

The collection and publication of oil statistics on a weekly basis would require a semi-automated process to capture and verify the data, because of the limited time available to correct errors or make adjustments manually. The setting up of an adequate oil data warehouse would be a key mitigation measure to the risks associated with the technical setting up of a WOR system, including poor quality data, accuracy risk and data confidentiality breach, and an efficient way to shorten the timeline in the data collection process.

Figure 3.3 below illustrates the characteristics of the potential oil data warehouse for WOR implementation.

Figure 3.3: Schematic IT system for data collection



Source: Team analysis

Note that if oil stocks data is collected by MS, it is envisaged that all MS would need to set up their own oil data warehouse database.

3.2.3 Risk analysis

We summarized the risks identified during the in-country consultations and the development of this study, analyzed them and/or indicated potential mitigation measures for each of the three scenarios, as set out below:

3.2.3.1 Technical risks

The Table 3.2 summarizes analysis on the technical risks associated with the setting up of a WOR:

Table 3.2: Summary of technical risks

RISK CATEGORY :	Technical risks associated with the set up of a WOR system	
Specific risks	**Identification**	**Analysis and/or mitigation measures**
1. Timeline	Monthly statistics are generally published a few months after they are collected; and therefore producing statistics on a weekly basis may seem challenging.	In order to ensure that the oil stock data is made available to the market in a timely manner we recommend to: - Collect the data directly at the operational level. We identify oil depot/refineries as the appropriate reporting entity for WOR. Oil depots managers/owners have readily access to information on the level of oil stocks in their depots. - Set up a semi-automated process to capture and verify the data This can be done through a two-tier or three-tier systems. Note that a three-tier system will put the pressure on the MS for collecting and processing efficiently the data. We also recommend a pilot exercise, to assess the difficulties in practice and how they could be overcome or minimized.
2. Switch to a two-tier system (two-tier scenarios)	The current system works as a three-tier system involving companies, ministries and international agencies. Switching to a two-tier system is anticipated to require a new setup.	We envisage that the setting up of a semi-automated process will help to streamline the data collection and therefore facilitate a transition from a three-tier system to a two-tier system.
3. Availability of data	Some data collected on a monthly basis may not be available on a weekly basis.	Data on stocks and refineries activity is available from the economic operator identified, whereas the availability of weekly data on import/export and domestic demand is questionable.
4. Distinction between WOR and MOR systems	WOR is not anticipated to be integrated with MOR system and is envisaged to provide a different set of data.	MOR is designed to monitor the level of emergency stocks whereas the WOR is anticipated to provide information on the level of commercial stocks stored in each MS and aggregated at EU level to the oil market participants. It results that both set of data would not be easily comparable. This should be made clear. However we do not see it as a major risk as both data collection systems have different purposes.
5. Ability to set up a three-tier system (three-tier scenario)	There is not existing operating three-tier system.	It is technically feasible to set up a three-tier system. Automation is essential to the success of this scenario.

Source: Team analysis

3.2.3.2 Data quality and accuracy risk

The Table 3.3 summarizes analysis on the risks associated with data quality:

Table 3.3: Summary of data quality risks

RISK CATEGORY	Poor data quality and accuracy risk	
Specific risks	**Identification**	**Analysis and/or mitigation measures**
1. Leading to increased price volatility	There is a widespread view in the industry and ministries that WOR would produce inaccurate data and this would lead to an increase in price volatility.	If accurate, data should increase oil market transparency and results in better price setting. Our analysis of the US system shows that it is possible to produce weekly accurate data. In addition, our model developed in WP1 shows that there is no sustainable impact of stock information release on price volatility.
2. Leading to increased price fluctuations	There is a view that weekly oil statistics publication in the US creates excessive price fluctuations.	Following oil stocks release, oil prices are supposed to adjust factoring new information, oil prices can be both lower than the previous week prices if the stock levels are revised upwards or higher if the stock levels decline. The impact of the US weekly publications on daily prices is assessed in WP1 and concluded that even if the weekly oil stocks publications have short-term impacts on oil prices, the resulting fluctuations does not seem to be excessive.

Source: Team analysis

i. Data accuracy

It is difficult to assess the accuracy of the data collected. Indeed the accuracy of the stocks data is dependent on the inherent accuracy of the metering systems, i.e. percent error on the stock level measurements. As data is computed from thousands of facilities which have different measurement systems in place, the accuracy of the aggregated data is very difficult to infer. In addition the collecting entity is dependent on companies to self-report which may cause issues. A study recently conducted within the EIA by an external consultant "catalogued several instances in the past three years in which companies misreported the amount of oil they had in storage, sometimes by two million barrels in each weekly survey over the course of a year"[3].

Misreporting is a major issue and can not be fully avoided as IT systems are in general not fully integrated (cf. Appendix C in WP1). For instance, oil companies are not all equipped with integrated business management software, such as SAP and reporting data generally requires manual input from the oil companies which is inherently a source of errors. This issue does not only apply to WOR but also to MOR, although MOR allows respondents more time to complete the

[3] Wall Street Journal, Shortcomings exposed in oil data, march 18, 2010

form and check the data. In addition data is generally consolidated with the monthly fiscal declarations. **However, this data quality issue can be partially mitigated if the data provision is at least managed by a service that requires validation of data at the time of capture so as to ensure accurate statistics.**

ii. Monthly vs. weekly data

As no empirical data is available for Europe, in WP1 we compare the weekly data produced by the EIA to the monthly data. Monthly data is thought to be more accurate than weekly data. Reasons for this are several.

At respondent level:

- Respondents tend to close their books on a monthly basis, and do physical inventory measurements on a monthly basis, whereas on a weekly basis they report "book" inventories, which reconcile opening inventories with receipts and shipments to calculate their closing inventories. Physical inventories tend to be more accurate, however "book" inventory measurements tend to be very close to physical inventories;
- Respondents have more time to prepare, review and check their monthly forms, because they are not due until 20 days after the end of the reporting month. This allows respondents more time to complete the form more carefully and investigate any inconsistencies or anomalies.

At EIA level:

- EIA analysts have several weeks in which to analyze and validate the incoming monthly data, and question any discrepancies. Monthly analysts can contact respondents and give them time to investigate and correct any errors on their reports. The weekly data, by contrast, is processed in less than 48 hours, which gives analysts less time to investigate, and respondents less time to correct any errors on the weekly reports, and;
- Contrary to monthly surveys, weekly surveys are only distributed to a sample of companies.

In addition monthly forms are much more detailed. For example, the monthly refinery and bulk terminal forms require the respondent to report data for opening inventory (which must agree with the prior month closing inventory), and reconcile the closing inventories with receipts, shipments, inputs, and production. This makes it much harder to make an error without it being revealed by arithmetic line imbalances.

Our analysis of US data accuracy in WP1 confirms that US weekly data may differ in magnitude from monthly data. However, weekly data is much closer in terms of trend or direction. Weekly data provides estimates and may deviate a few percents from the monthly data. Nevertheless, it is relatively accurate in predicting market trend which is where its usefulness resides. **It is important to understand that the value of the weekly data is its timeliness, and therefore its utility in revealing current market trends.**

iii. Three-tier system vs. two-tier system

As mentioned the accuracy of the estimates published is largely dependent on the accuracy of the data collected at respondent level. Therefore the accuracy of the reports produced by both systems is likely to be similar.

In addition note that a two-tier system only requires manual input at respondent level whereas a three-tier system requires manual inputs at both respondent and MS level potentially introducing potential additional errors. However data processing is segmented by country in a two-tier system which allows a better control of the data.

Overall it is anticipated that the structure of the collecting system, two-tier or three-tier will not influence significantly the quality of the data.

3.2.3.3 Data confidentiality breach

Table 3.4 summarizes analysis on the data confidentiality risks:

Table 3.4: Summary of data confidentiality risks

RISK CATEGORY	Data confidentiality breach	
Specific risks	**Identification**	**Analysis and/or mitigation measures**
1. **Confidentiality breach**	Data confidentiality breach can be costly to the reporting companies as they will provide sensitive data. Reporting directly to the EU or an independent body, rather than to the relevant MS government may further increase their concerns over confidentiality.	An adequate technical set up is required. We recommend that: - The implementation of a secure web portal, to which data providers subscribe; - The setting up of an oil data warehouse, hosted in a secure environment and made available for further analysis by authenticated user access. Data should be stored in an encrypted format prior to its formal release. Note that a good example of a successful system with handled commercially sensitive data from oil companies is the Solomon Associates' global system. We recommend collecting the information directly from the operators (oil depots/refineries). It has the advantage of guaranteeing the confidentiality of the commercial strategies of the owner.

Source: Team analysis

3.3 Institutional analysis

WP2 describes the existing EU and national institutional and regulatory framework on monthly oil reporting as well as the feasibility of introducing a WOR mechanism.

We have analyzed the existing institutional framework/mechanism for monthly oil reporting on a European level and have concluded that there is a typical three-tier system with the following structure:

- **Bottom Tier :** Includes all obligated entities, either private and/or public, in every Member State (in accordance with respective national legislation); Entities of the Bottom Tier report directly to the Authorities/Agencies in the Middle Tier, on a monthly basis;
- **Middle Tier :** Includes all Responsible Authorities/Agencies in each and every EU member state (in accordance with respective national legislation); Authorities/Agencies of Middle Tier, a) collect data from the entities of the Bottom Tier, b) disseminate/analyze collected data, and c) report to the EC and/or IEA, on a monthly basis;
- **Top Tier :** Includes European Commission (i.e. Eurostat, MO) and/or IEA (depending on whether or not the particular Member state/s is/are Member/s of IEA also); EC and/or IEA collect the data, from the national Authorities/Agencies of the Middle tier, on a monthly basis.

We have then analyzed the institutional framework on oil reporting at Member State level, by looking at: the national competent body, data collected, timeframe for data collection, processing and reporting, types of questionnaires utilized for international reporting purposes (MOS, JODI) and the recipients of the monthly reports (Eurostat, MO, IEA).

The lack of a clear definition causes confusion on what the term “commercial oil stock” actually means. The complexity arising from this confusion increased while conducting in-country consultations and collection of relevant laws and legal documents, as it became apparent that the data collection process did not, in practice, make any distinction between “commercial stocks” and “emergency stocks.”

The JODI Questionnaire does not provide any distinction in terms of “commercial stocks” and “emergency stocks”. Reporting in accordance to JODI questionnaire refers to closing stocks, which represent the primary stock levels at the end of each month within national territories; including stock held by importers, refiners, stock holding organizations and governments. Primary stocks includes both: a) Government controlled stocks (stock exclusively for emergency purposes, owned by governments and organizations established to hold stock) and b) Industry stocks (stocks owned by oil companies, traders and other organizations, including stocks held by the industry to meet IEA, EU and national emergency reserve commitments). The term of “commercial stocks” has been recently laid down by the Directive 2009/119/EC, article 14.

The institutional structure in MS as of today satisfies the requirements for MOR according to Directive 67/2006/EC and Regulation EC 1099/2008 on energy statistics.

Taking into account the introduction of the concept of “commercial stocks” and the requirement for their MOR by the MS according to Article 14 of the Directive 2009/119/EC, as well as the lack of specific rules

and procedures under which the commercial stocks shall be reported, we concluded that as of today, the monthly commercial oil stocks reporting at EU level is not existing as such.

While undertaking the analysis of the institutional framework at MS level, we have identified some critical issues regarding the monthly emergency oil reporting, such as: delays in oil stocks data collection, delays in oil stock data reporting, delays in cross checking oil data at the Middle Tier and Bottom Tier. Furthermore, we have investigated from an institutional point of view, the feasibility to introduce the WOR in the EU and MS, based on the scenarios presented in WP1 and WP4, as follows:

- Three-tier system;
- Two-tier system with existing organization;
- Two-tier system with new organization.

From an institutional point of view, the WOR system can be introduced by either three or two-tier systems with minimum data. The WOR could function in parallel with the monthly emergency reporting system, hence supplementing it.

The adoption of the three-tier system for WOR will not necessitate major institutional changes; however it will require amendments in the EU and MS' legislation. Sanctions for non-compliance with the reporting requirements could be put in place by the MS.

On the other hand, the two-tier system can be implemented either by assigning to the Eurostat/ Market Observatory the responsibility to collect and publish data directly from the obliged entities **or by setting up a new organization** for the same reason (Top Tier). Certain technical arrangements to facilitate the WOR (such as the data warehouse) would be required. In case the two-tier system is established with a new organization, such as **a Monitoring Centre for Oil and Oil Products**, the set up of such organization would imply institutional changes at EU level.

In both two-tier scenarios, the MS will need to define in their national legislation which should be the obliged entities (oil depots and refineries activities) for the reporting to the European Commission. **It is expected that the obliged entities will be the owners/managers of oil storage facilities and refineries.** This will support the protection of the sensitive data, such as ownership of the stocks. Sanctions for non compliance with the reporting requirements could be put in place by the MS.

3.4 Legal analysis

"Work Package 3- Legal/Regulatory Environment" describes the existing EU and national legislative and regulatory regime governing the oil reporting system and legal options for the establishment of a WOR system.

The legal regime of the European Union governing oil data reporting was developed in close conjunction with the rules relating to the maintenance and use of emergency stocks of crude oil and/or petroleum products, which was introduced in 1968. For this purpose, all oil stocks located in each MS are required to be reported in order to calculate its respective oil stockholding obligations under the EU emergency oil stock legislation. Therefore, the following legislation concerning emergency oil stocks is in fact the means

for reporting all oil stocks data available in each MS, since, due to the "commingling practice" a number of MS report all oil stocks in their territory without distinction between emergency and commercial oil stocks. The issue of oil stocks reporting (and the associated issue of emergency stocks) has been governed by three distinct pieces of EU legislation:

- **Directive 2006/67/EC** imposing an obligation on MS to maintain minimum stocks of crude oil and/or petroleum products;
- **Directive 73/238/EEC** on measures to mitigate the effects of difficulties in the supply of crude oil and petroleum products;
- **Decision 68/416/EEC** on the conclusion and implementation of individual agreements between Governments relating to the obligation of MS to maintain minimum stocks of crude oil and/or petroleum products.

Regarding the submission of oil data, we should also mention the Council Regulation No 2964/95 introducing registration for crude oil imports and deliveries in the Community, the Council Decision 1999/280/EC regarding a Community procedure for information and consultation on crude oil supply costs and the consumer prices of petroleum products (as implemented by the Commission Decision 1999/566/EC of 26 July 1999) and the EU Regulation 1099/2008 on Energy Statistics.

The Council has adopted a **new Directive, Directive 2009/119/EC,** on the maintenance of minimum stocks of oil or petroleum products, which will replace all existing Community legislation in this field. This Directive, which MS are required to transpose into national legislation within two years (up to 31 December 2012), aims at tackling the deficiencies of the previous system and at improving the functioning of current EU oil stocks mechanisms, so as to ensure the availability of oil in the event of an oil supply crisis.

To that end, it has reconciled the Community system on oil stockholding with the system provided for by the International Energy Agency by requiring MS to ensure that by 31 December 2012, total oil stocks, maintained at all times within the EU for their benefit, correspond, at the very least, to 90 days of average daily net imports or 61 days of average daily inland consumption, whichever of the two quantities is greater. Furthermore, all MS are subject to the obligation to hold at least 30 days of stocks or a third of their stockholding obligation in the form of refined products.

The Directive 2009/119/EC sets forth a new regime regarding the maintenance of minimum stocks on oil products, such as:

- Convergence of the EU stockholding system with the IEA system;
- The new concept of "specific stocks" and voluntary requirement for their reporting;
- The concept of "commercial stocks" has been defined;
- Voluntary creation of a central stockholding entity;
- Increased monitoring requirements;
- Alignment with IEA on the release of emergency oil stocks;
- Increased obligation for the submission of monthly oil data on specific stocks and commercial stocks.

The new Directive still provides for monthly oil reporting of summaries of commercial stocks (Article 14). However, the new Directive, having acknowledged that the frequency of the summaries submission (MOR system), as laid down by Directive 2006/67/EC "seem to be out of step with various stockholding systems"

takes special care in Articles 12(2) and 23(2) in order to leave a window for a more frequent reporting through the comitology system.

All EU MS have enacted legislation for compulsory MOR on crude oil and petroleum products. In all MS, the established oil reporting system is closely associated with two major issues:

1. The EU MS' obligation to maintain emergency oil stocks under the EU legislation and pursuant to the commitments undertaken by their participation in international bodies, such as the International Energy Agency (for those EU MS that are members of IEA). In this regard, oil reporting forms the basis for control of compliance with a MS' emergency stockholding obligations; and

2. Their obligation to submit to the European Commission the statistical energy reviews required under the EU legislation

The relevant legislations of the MS have been examined in an attempt to identify the existing legal and regulatory framework in all MS pertaining to oil reporting.

Following the analysis of the legislative and regulatory framework of the EU MS regarding the oil reporting, the following conclusions were drawn:

- Most of MOR in the MS is carried out for the calculation of the emergency stock obligation under the EU legislation.
- The existing legislation is orientated to the maintenance and reporting of emergency reserves following the typical monthly three-tier system.
- The existing legislation contains no provisions for WOR neither an explicit prohibition for the same.
- Polish law imposes an obligation on the entities to report both the emergency stocks and the commercial stocks.

After having reviewed both EU and MS legislation governing oil reporting, we have investigated the legal options to introduce WOR for each of the scenarios below:

- Three-tier system;
- Two-tier system with existing organization;
- Two-tier system with new organization.

It must be noted, that any decision in favour of establishing the WOR shall be initiated at the EU level, hence constituting a top-down approach. Therefore, the established EU legislation for oil stocks reporting should be modified in order to generate modifications in the legislation of the MS.

3.4.1 Three-tier system

The legislative options for introducing WOR by amending the Directive 119/2009/EC are as follows:

- Comitology procedure on the Directive 119/2009/EC
- Adoption of a new Directive
- Adoption of a new Regulation

Irrespective of the option to be chosen, the introduction of a three-tier WOR system should target the following:

- Setting up a comprehensive mechanism for weekly commercial oil stocks' reporting;
- Providing for accurate definition on the term "commercial stocks";
- Introducing a Standardized Template Form (cf. Table 2.5 WP4) for commercial oil stocks report submission;
- Establishing the rules for the preparation and submission to the Commission of statistical summaries concerning the stocks.

3.4.1.1 The comitology procedure

An option for the setting-up of a three-tier WOR system is through the comitology procedure, which today finds its legal basis in Article 202(3) of the Treaty of the European Community (ECT), where it is stated that the Council of Ministers may "impose certain requirements" upon the Commission when delegating implementing powers. The imposition of "certain requirements" includes the Commission's obligation to consult comitology committees. This provision has been used to install an ever increasing number of comitology committees covering almost all aspects of EU policy making.

As far as commercial WOR is concerned, the comitology procedure is provided for in Articles 14 and 23 of the Directive 119/2009/EC. The combined effect of these two provisions is that a comitology committee can be set up under the regulatory procedures in view of the establishment of a WOR mechanism within the EU.

The comitology procedure should therefore focus on the Commission's implementing measures for the Directive 2009/119/EC, which are the following:

- Article 2(k) to provide a precise definition.
- The above article gives a definition of "commercial stocks" as being "*those oil stocks held by the economic operators which are not a requirement under this Directive*". However, by virtue of Article 14 of the same Directive, the commercial oil stocks are subject to reporting, being therefore a requirement under the said Directive and constituting hence the ambiguous character of the definition.
- Article 14(1) to provide for weekly instead of monthly submission of the statistical summaries of the levels of commercial stocks held within the national territory of the MS.
- A new Annex to the Directive shall be introduced, setting out the rules for the preparation and submission to the Commission of statistical summaries of stocks to be reported pursuant to Article 14 of the same Directive. This Annex should also contain a detailed Standardized Template Form for submission of reports. A requirement to abide to such rules shall be duly incorporated in the amended Article 14.

As a drawback, any changes to a recently adopted Directive, which have not yet been transposed in the national legislation of the MS, would be intricate to materialize.

From the MS' perspective, in case they haven't transposed the Directive 2009/119/EC, they have to implement the outcome of comitology procedure. In case they have transposed it, the MS have to implement the outcome of comitology procedure and amend the domestic legislation accordingly.

3.4.1.2 Adoption of a new Directive

The adoption of a new Directive should lead to establishing a clear legal basis for WOR in parallel to the monthly emergency oil stocks reporting.

The new Directive shall set forth the framework for commercial oil stocks reporting on a weekly basis, repealing Article 14 of the Directive 119/2009/EC, limiting the scope of the latter to the emergency and specific oil stocks reporting only, and repealing Article 2(k), as the definition of the term "commercial stocks" shall be provided in the new Directive.

In effect, the legal regime shall be governed by two dedicated Directives for commercial and emergency oil stocks reporting respectively. As a result, the commercial oil stocks data shall be reported on a weekly basis, whereas the emergency oil stocks data on a monthly basis.

However, this option has the following drawbacks:

- The legislative process for adopting a new Directive may - depending on the legislative procedure to be utilized – take approximately twenty months.
- A further twenty four months can elapse before a Directive has been transposed by all MS. It is difficult to reconcile such a lengthy period with the prompt introduction of WOR.
- Such new Directive will obviously require administrative implementing measures to be taken by the MS, which will be another source of additional complexities, divergences and delays, not to mention straightforward non-transposition.

The legal impact on the MS resulting from the adoption of a new Directive would be the requirement of transposition thereof into the respective national legislations in parallel to the transposition of the Directive 2009/119/EC. As an outcome, the national legislation of the MS would contain two distinct sets of domestic laws governing the reporting of commercial and emergency oil stocks reporting respectively.

3.4.1.3 Adoption of a new Regulation

Another option of introducing a WOR system could be the adoption of a new EU Regulation. The issues to be addressed by such an approach bear significant resemblance to those targeted by adopting a new Directive. Moreover, as in the case of adopting a new Directive, Article 14 and Article 2(k) should be repealed by the new Regulation. Effectively, the legal framework for reporting commercial (weekly) and emergency (monthly) oil stocks shall include two distinct legal instruments, namely a new Regulation for the former and Directive 2009/119/EC for the latter.

The advantage of adopting a new Regulation would be an immediate establishment of a WOR system, since the Regulation shall be binding in its entirety and directly applicable in all MS, to the extent that a Regulation comes into force it prevails over all domestic legislation concerning the same subject matter and subsequent national legislation must be consistent with and enacted in the light of the regulation.

The drawback of such an approach would be that it may restrict the powers of the MS to a greater degree, since in principle a Directive leaves the MS with more latitude in terms of implementation than a

Regulation. Furthermore, since regulations constitute one of the most powerful forms of European Union law, a great deal of care is required in their drafting and formulation. In addition, the adoption of a Regulation is a long lasting process as well.

The legal impact on the MS of adopting a new EU Regulation would be the necessity to accommodate the provisions of the Regulation in the respective national legislation, since it is common practice to pass legislation dealing with consequential matters arising from the coming into force of a regulation.

3.4.2 Two-tier system with existing organization

3.4.2.1 Adoption of a new Directive

The setting-up of two-tier WOR mechanism could be done through the adoption of a new Directive. The administration of the WOR system could be undertaken by an existing EU body**.**

As in the case of the three-tier reporting system, the Directive to be adopted for the establishment of a two-tier oil reporting system with an existing body should address the following issues:

- Setting up a comprehensive mechanism for weekly commercial oil stocks' reporting;
- Providing for accurate definition on the term "commercial stocks";
- Introducing a Standardized Template Form for commercial oil stocks report submission;
- Establishing the rules for the preparation and submission to the Commission of statistical summaries concerning the stocks.

In addition to the above list, in the case of the two-tier system, the new Directive shall tackle the subject of the identification of the entities, who are subject to weekly reporting obligations with a view to covering the confidentiality obligations, as well as the identification of the European authority responsible for data collection.

In contrast to the three-tier system, the set-up of a two-tier system entails the elimination of the middle tier from the reporting system, hence posing a risk of breaching the confidentiality clause. In case the middle tier is eliminated from the reporting system, the bottom tier entities shall report to the top tier entities directly, constituting a clear breach of the aforementioned confidentiality provision. As suggested by WP4, the matter can be addressed if oil stocks data is reported directly from the owners/managers of the oil depots and refineries, i.e. at the operational level. Such a limitation would guarantee the confidentiality of sensitive data, as the ownership of stocks will not be revealed. Therefore, the new Directive should define the entities of the bottom tier in the context of the above.

The new Directive shall define the competent European body for collection of weekly commercial oil stock reports.

From the MS' perspective, the respective domestic legislation shall reflect the provisions of the new directive within the time limits established for the transposition thereof. Consequently, the MS shall enact legislation placing an obligation on the entities of the bottom tier to report directly to the competent

European body and imposing sanctions for failure to report duly. To that end, the MS shall draw up and update a definitive list of entities subject to reporting requirements and forward the list to the Commission.

3.4.3 Two-tier system with new EU organization

The legislative implementation of this scenario for the setting up of a two-tier WOR system in the EU could be effected with the adoption of an EU Regulation, which, in addition to satisfying the requirements for the establishment of the system will also provide for the establishment of the new body. The body to be established will be responsible for collecting and publishing the submitted data on a weekly basis. In this case, the said Regulation will, when adopted, take immediate effect in all the MS in the same way as a national instrument, without any further action from the part of the national authorities.

For the new body to be created, the Consultant recommends the creation of a **European Monitoring Centre for Oil and Oil Products**, whose principal objective will be to administer the WOR mechanism. The legal nature, competences, functions and organization structure of this Centre will be specified in the Regulation and a concise summary on these issues coupled with concrete suggestions are presented by the Consultant in the following sections.

The adoption of an EU Regulation providing for the establishment of a new body responsible for collecting and publishing the Commercial oil stock data on a weekly basis suffers from the same drawbacks as in cases examined above.

Similarly, the legal impact on the MS' domestic legislation shall be the same as in the case adopting a new Regulation for the three-tier system.

3.4.4 Conclusion

To conclude**, from a legal standpoint, there are no barriers to introduce the WOR by employing any of the three aforementioned scenarios.**

All in all, from a legal point of view, the preferred option to introduce WOR is the three-tier system through the comitology procedure for implementing measures to Directive 2009/119/EC:

The data to be collected will be monitored by the MS. Given that the Directive 2009/119/EC sets forth the requirement to report the commercial oil stocks on a monthly basis, the comitology (introducing implementing measures for the Directive 2009/119/EC) option seems the most appropriate due to the following:

- Rules for MOR monthly commercial oil stocks are not yet defined in the Directive 2009/119/EC and the mechanism for reporting commercial oil stocks is not functional in the MS as of today;
- The rules for MOR of commercial oil stocks will have to be established through the comitology procedure and can be introduced by comitology procedure with scrutiny (Commission's implementing measures), as per Article 14(3) of the Directive 2009/119/EC;
- Comitology procedure can be applied to adjust the frequency of monthly commercial oil stocks reporting;

- The oil stocks reporting mechanism already in place in MS facilitates the introduction of the WOR system.

However, the ultimate decision concerning the modalities of introducing WOR shall be based on the combined characteristics of financial/economic, political, and technical factors.

3.5 Financial analysis

Following the analysis undertaken in WP5, we presented a detailed analysis of the cost burden to the different parties involved in oil data reporting. Those were disaggregated into three categories:

- Industry;
- MS;
- International organizations.

3.5.1 Approach

Our cost analysis focused primarily on the resources needed for the respondents of the industry. In WP4, oil depots/refineries were identified as the appropriate reporting entities and we therefore considered them as the basis for our detailed cost calculations in WP5.

Our cost model was informed from the approach undertaken by the IEA to assess the costs burden to the respondents of its own weekly data collection system. It assumed that the costs were "proportional" to the number of reporting entities. We estimated an hourly and a cost burden for each category of respondent. The burden was defined as the “time, effort or financial resources the respondent expends to provide information to the collecting entity”.

We factored the uncertainty on the hourly and cost burden in our analysis by associating distribution probability to these variables. We subsequently performed Monte-Carlo simulations. It enabled us to forecast a range of possible outcomes for the total estimated costs to the respondents.

3.5.2 Cost burden at MS level

The costs estimates at MS level are presented in Table 3.5. Cost estimates at respondent level are valid for all three minimum data scenarios. CAPEX estimates are valid for year 1 only and OPEX for the following years.

Table 3.5: Summary of cost burden per year at MS level (oil industry and ministries)

Cost to:	Estimates- (in €)	
Refineries	CAPEX: n/a	
	Probabilistic approach	*Deterministic approach*
	OPEX: ■ Mean: €603,354 ■ Standard deviation: €172,527	OPEX: €602,000
Oil terminals (as a proxy	CAPEX: n/a	

Cost to:	Estimates- (in €)	
for oil depots)	*Probabilistic approach*	*Deterministic approach*
	OPEX: ▪ Mean: €4,621,639 ▪ Standard deviation: €1,316,160	OPEX: €5,231,000
Industry	OPEX (high level estimates): €4,860,000	
	Probabilistic approach	*Deterministic approach*
	OPEX: ▪ Mean: €5,224,993 ▪ Standard deviation: €1,327,017	OPEX: €5,231,000
MS (only "three-tier system "scenario)	CAPEX: €2,970,000 (year 1 only) OPEX: €2,444,000	

3.5.3 Cost burden at EU level

Table 3.6 summarises the cost estimations at the EU level:

Table 3.6: Summary of cost burden per year at EU level

Estimates of cost burden at EU level (in €) ***Two-tier system with existing organization***	Estimates of cost burden at EU level (in €) ***Two-tier system with new organization***	Estimates of cost burden at EU level (in €) ***Three-tier system***
▪ CAPEX (year 1 only): €200,000 ▪ OPEX: ➢ Operational IT cost: €84,000 ➢ Labour cost: €720,000	▪ CAPEX (year 1 only): €220,000[4] ▪ OPEX: ➢ Operational IT cost: €84,000 ➢ Labour cost: €720,000	▪ CAPEX (year 1 only): €110,000 ▪ OPEX: ➢ Operational IT cost: €42,000 ➢ Labour cost: €240,000

Source: Team analysis

[4] This estimate is based on a public section procurement of business intelligence solution Mott Macdonald recently conducted to collate, transform and publish statistics

3.5.4 Conclusion

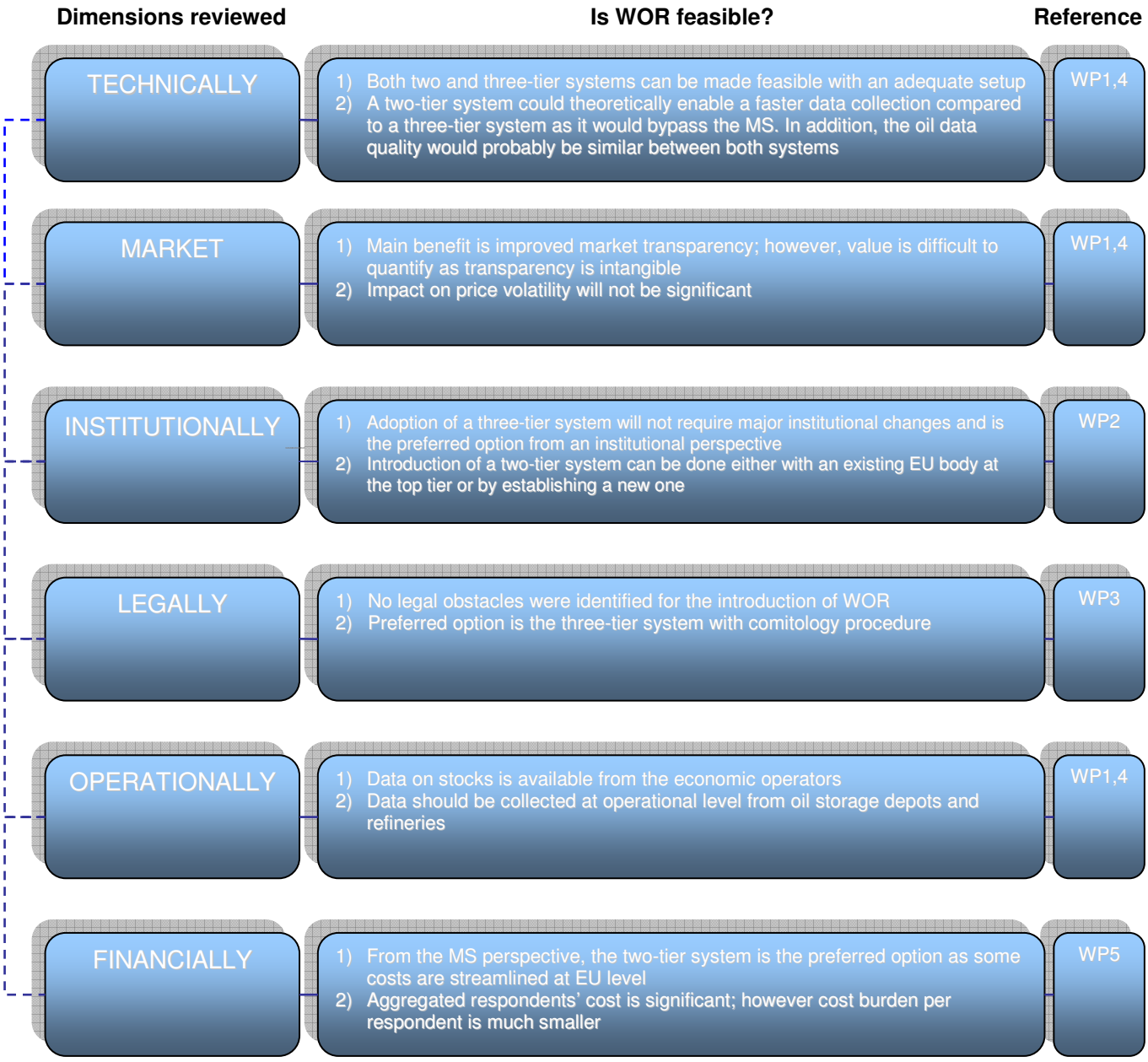
We concluded that:

- **At MS level:**
  - Cost burdens to respondent were similar for all three minimum data scenarios. The aggregated cost burden to respondents was estimated at approximatively €5,200,000. This estimate is an aggregated cost for the oil industry at the European scale. As WOR would cover thousands of oil depot facilities the cost per respondent, i.e. depot owner, would be relatively small.
  - In a three-tier system, the cost burden would be imposed on ministries as they would have to invest in IT systems to collect, process and verify efficiently the oil data from the respondent, whereas a "two-tier system" would not impose any cost burden on them.
- **At EU level:**
  - The "three-tier system" scenario would be economically the most favourable one. Indeed part of the cost burden would be borne by the MS.

4. Overall conclusion

The aggregated analysis undertaken in each of the WPs enabled us to cover six dimensions regarding the feasibility of WOR. Our key findings are summarized in Figure 4.1 below.

Figure 4.1: Summary of conclusions on the feasibility of WOR



Source: Team analysis