VOLUME THREE

Energy Industry©

Inventory Benchmark Study and Recommendations

KopacConsulting®

Providing Business Solutions to the Energy Industry

PURPOSE OF STUDY

- Provide a first of its kind benchmark study of inventory turnover by segment for the energy industry.
- Provide a baseline for energy companies to compare results with peers (e.g. improve from low to median or median to high).
- Identify opportunities to improve inventory performance.
- Provide a view for integrated companies to compare results on a segmented basis.

INTRODUCTION AND HIGHLIGHTS

Based on our research, *Energy Industry Inventory Benchmark Study and Recommendations* is the first of its kind for the energy industry. Although one of the major risks within the industry is price risk of commodities, we believe that there is room for proper supply chain management and visibility to non-resale assets such as supplies, materials, and support inventory as well as assets to be sold or leased (e.g. drilling tools). Studies indicate a range of savings from 5% to 10% can be obtained by effective supply chain and inventory management.

We surveyed a broad sample of 114 companies in the energy industry that have tangible assets—namely inventory, in order to uncover trends by segment and for the overall industry. Although there are several metrics for inventory performance, our study limited it to one—inventory turnover. By inventory we mean exclusively—non-commodity inventory. Data were selected from publicly available information where non-commodity inventory and materials were presented on the balance sheet.

Benchmarks results for the entire industry are outlined in the exhibits from the population of 114 companies sampled. Trends for the industry as a whole from 2008 to 2009 are as follows:

- Non-commodity inventory for all segments combined declined 14.2% from $103.1 B to $88.5B.
- Mean non-commodity inventory turns decreased 22% from 16.65 to 13.01.
- Non-commodity inventory as a percentage of assets decreased 0.78% from 4.67% to 3.89%.

Although there was a nearly across the board reduction in non-commodity inventory levels in 2009 from 2008, it was not enough to sustain 2008 turn over levels because of a sharp drop in industry revenue (22.3% or $504.8B). Inventory as a percentage of revenue increased 0.47 % from 4.54% to 5.02%. We invite you to review this document and consider its applicability to you company. Additionally, if you have comments or suggestions for future releases based on updated values for 2010 financial results, please provide these as well.

Sincerely,

Kopac Consulting LLC
January 2011

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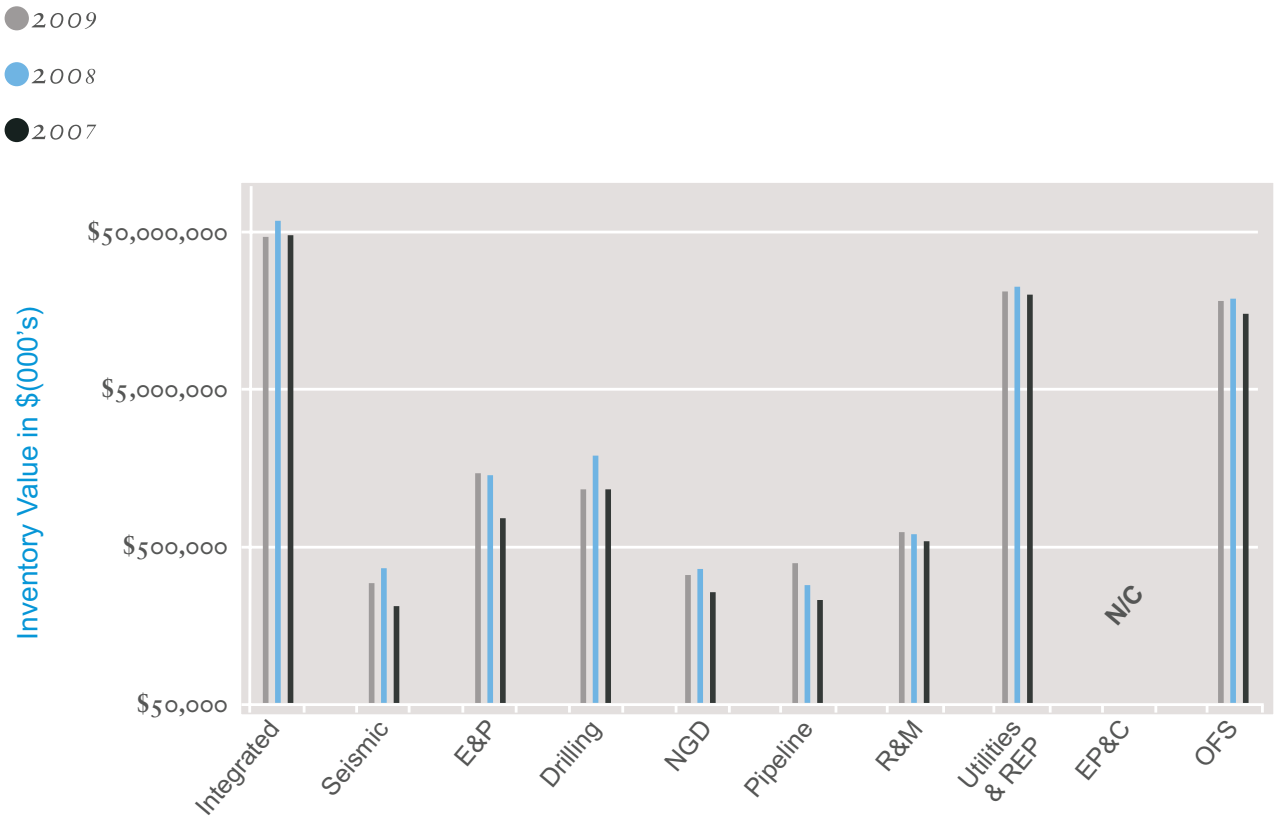
1. Results and exhibits

Exhibit 1
Summary Trends for the Energy Industry (All Segments)

	2009	2008	CHANGE Billions	CHANGE % / Trend
Total Assets	$2.27 T	$2.21 T	$64.7 B	2.93%
Total Revenues	$1.76 T	$2.27 T	$504.5 B	22.3%
Inventory	$88.5 B	$103.1 B	$14.6 B	14.2%
Inventory/ Assets	3.89%	4.67%	–	0.78%
Inventory/ Revenues	5.02%	4.54%	–	0.47%
Average Turns All Segments	13.01	16.65	3.64	22%

T= Trillion
B= Billion
Total Segments are 10 distributed as follows: Integrated, Seismic, Exploration and Production, Drilling, Natural Gas Distribution, Pipeline, Refining and Marketing, Utilities and Retail Energy Providers, Engineering Project and Construction, and Oilfield Services.
Number Companies Sampled: 114

Exhibit 2
Non-commodity Inventory Value Across the Energy Chain



Inventory defined as non-commodity (e.g. supplies, rental tools, parts for resale and not petrochemicals).

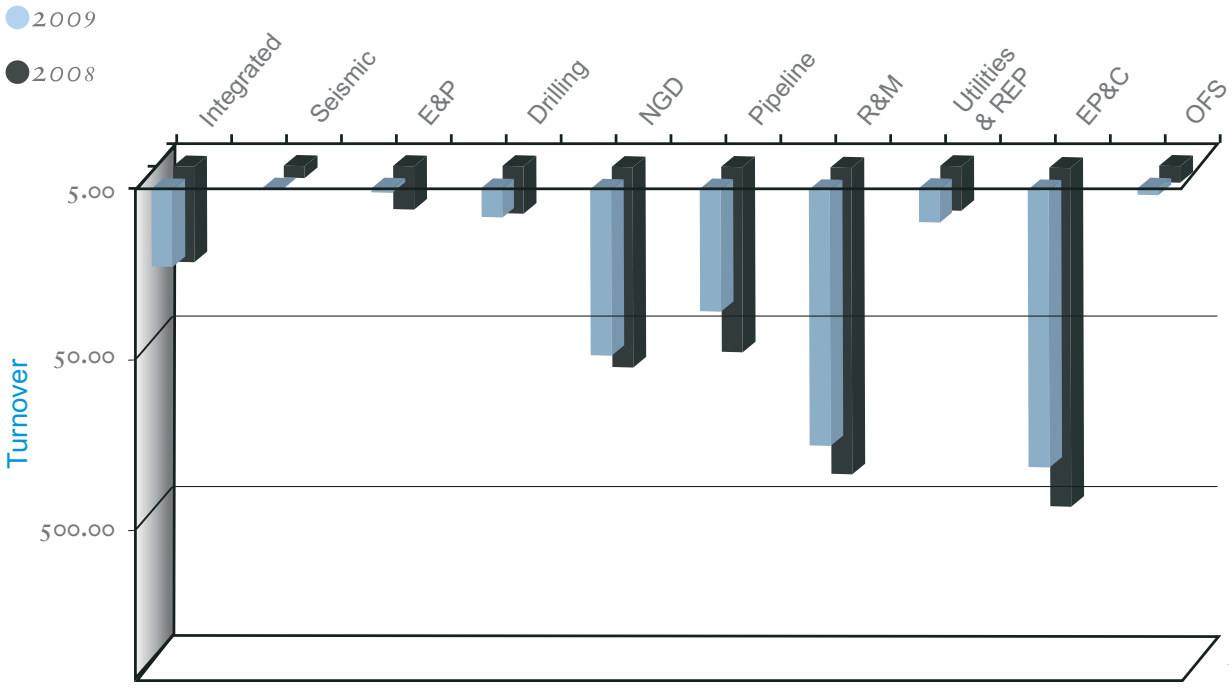
Total for all Sectors:	2009	2008	2007
Sample of 114 companies	$88.5B	$103B	$84B

Note that in 2009 95% of the inventory in the energy industry was distributed among three segments as follows:

- *Integrated (52%)*
- *Utility (23%)*
- *OFS (20%)*

This trend was consistent year after year.

Exhibit 3
Average Inventory Turns by Segment



Note: Segment inventory turnover was obtained by computing the turnover using the total inventory turnover and COGS values of a given segment.

Exhibit 4
Segment Trend Data

Companies Profiled		Integrated	Seismic	Exploration and Production	Drilling
# of Companies Profiled		8	3	15	9
Trend in Turnover		Down	Down	Down	Down
2009					
Segment Inventory		$45.7 B	$292.0 M	$1.44 B	$1.15 M
Percetange of Assets		5.01%	18.9%	1.1%	1.5%
Turns:	High	22.5	13.7	58.9	30.9
	Mean	15.1	4.3	5.1	8.3
	Low	5.3	1.1	1.7	2.0
2008					
Segment Inventory		$57.8 B	$361.8 M	$1.41 B	1.87 B
Percetange of Assets		6.5%	23.2%	1.1%	2.7%
Turns:	High	39.0	16.0	80.9	30.3
	Mean	18.9	6.1	9.5	9.9
	Low	8.3	1.5	3.6	2.5

M= Million B= Billion

Natural Gas Distribution	Pipeline	Refining and Marketing	Utilities and Retail Energy Providers	Engineering Project and Construction	Oilfield Services
10	2	5	40	2	20
Down	Down	Down	Down	Down	Down
$326 M	$388 M	$615 M	$20.7 B	$6.1 M	$17.9 B
0.6%	1.1%	1.0%	2.4%	0.61%	12.3%
182.7	58.0	225	25.7	277.4	25.1
54.0	29.4	185.4	8.52	262.6	5.39
42.6	40.1	108.4	1.4	208.9	1.3
$358M	$284 M	$599 M	$22.0 B	4.1 M	18.4 B
0.7%	0.8%	1.1%	2.7%	0.41%	13.5%
261.6	358.0	424.2	30.0	604.5	43.3
81.3	65.9	350.12	9.5	454.9	6.33
51.1	85.6	186.3	2.3	305.4	1.5

2. Analysis and conclusions

The largest segments containing inventory were represented by three segments: integrated companies, utilities and retail energy providers; and oilfield services with inventory in 2009 of $45.7B, $20.7B, and $17.9 billion respectively.

- The integrated providers would have large inventory balances due to the following:
  - Sheer size and complexity of operations
  - Many invest in oilfield services and other inventory intensive downstream operations (e.g. refining).
- Utilities maintain an inventory for parts and maintenance of facilities.
- Oilfield services generally support upstream, midstream, and downstream, energy operations thus requiring larger inventories.
- The smallest segments containing inventory were represented by seismic and engineering project & construction, both primarily service segments.
- Each segment has a significant range between the high and low turnover. This could be due to multiple factors such as accounting practices and policies, limited industry visibility of inventory practices, relative amount of cost of goods sold and different prices used in the calculation of inventory turnover.

Part 2: Benefits of Inventory Management

3. Benefits of inventory management

The overarching goal of effective inventory management is procurement at the right time, for the correct location, and in the right quantities. Improved inventory control and inventory optimization directly contribute to an increase in inventory turns thus lowering physical stock on hand resulting in the following benefits:

Financial

- Decrease in the processing costs (cost of managing inventory in terms of tracking inventory errors and exceptions) (Unit Costs)
- Maximize early identification of slow moving and obsolete stock by market and product in order to prevent future losses (Excess & Obsolescence)
- Decreased working capital requirements
- Decrease in the opportunity cost (Cost of Capital - %) and decrease risk costs of managing inventory (Inventory reserve losses in $)

Customer Satisfaction

- Increase in customer satisfaction (On Time % and Line Fill Rate %)
- More accurate and reliable inventory reserve calculations (% Reserves)
- Better forecasting of customer requirements

Processing Time

- Decreased cycle times from ordering-to-billing.

4. Inventory processes

Typical inventory processes within the energy industry include the following:

Planning/Forecasting These activities support needs planning for a defined horizon. Collaborative efforts from Sales, Marketing, and Operations determine an accurate forecast.

Procurement Involves strategic sourcing, supplier risk management, and supplier integration programs to obtain the highest quality goods at the best price while mitigating disruption in supply.

Receipt/Shipping Includes logistics, physical control of materials, and returns.

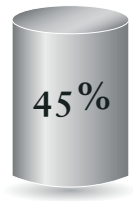
Production Operations may require the kitting of materials or assembly operations of parts or components prior to shipping or for use in operations.

Support Processes Support includes movement, warehousing, inventory counts, and costing.

5. Inventory costs

Exhibit 5 Inventory Costs: Where Does the Money Go? Outlines the key components of inventory for identifying possible savings opportunities. All of these areas should be explored for possible savings opportunities. Note: Percentages are estimates and not based from this study, but it can serve as a model to review process improvement activities. Conservatively, over half of the costs are in processes that support inventory.

Exhibit 5
Inventory Costs: Where Does the Money Go?

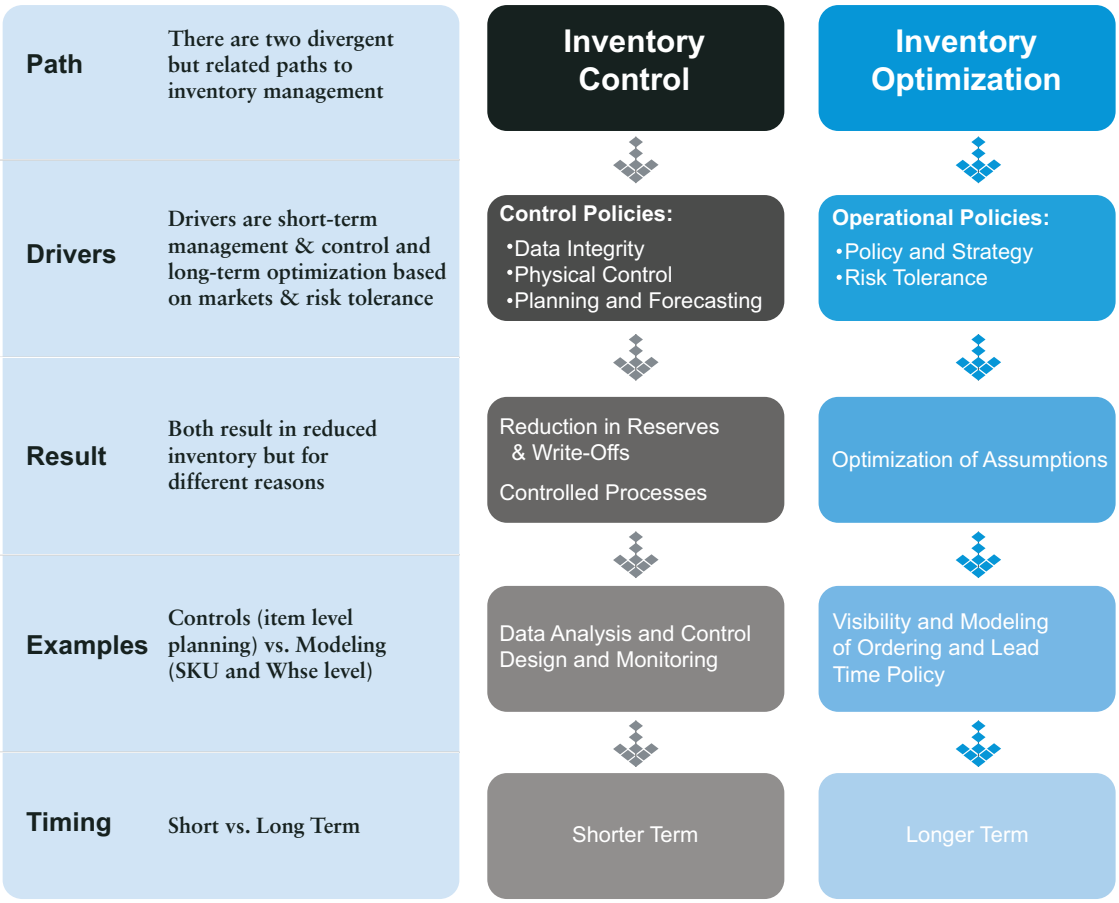
Direct (Material and Labor)				
Unit Cost (Laid in Costs)		Item Costs	Product Costs	• Material • Labor • Overhead
			Other Direct	• Insurance • Freight • Customs • Duties
			Storage	• Warehouse • Storage • Moving
Indirect (Overhead and Labor)				
Carrying Costs (Risk and Opportunity Costs)		Carrying Costs	Capital	• Cost of Capital
			Reserves	• Obsolescence • Damage • Pilferage • Deterioration
Order Costs (Process Costs)		Order Costs	Production and Processing and Back Office	• Production Control • Set-up Tear Down • Lost Capacity • Purchase Order
100% Total Economic Costs				

Part 3: Inventory Optimization Versus Control

6. Optimization versus control

Exhibit 6 outlines the comparison between inventory control and inventory optimization. Both are integral to effective inventory management. Operations managers and inventory experts should be able to address both as part of inventory management efforts.

Exhibit 6
Inventory: Optimization Versus Control



7. Inventory basics

The three must haves for proper inventory planning and control include the following:

1) Accurate sub ledger and general ledger data on inventory position (inventory on hand and on order)

2) Accurate procurement and manufacturing/assembly master file data (values and data which support the inventory)

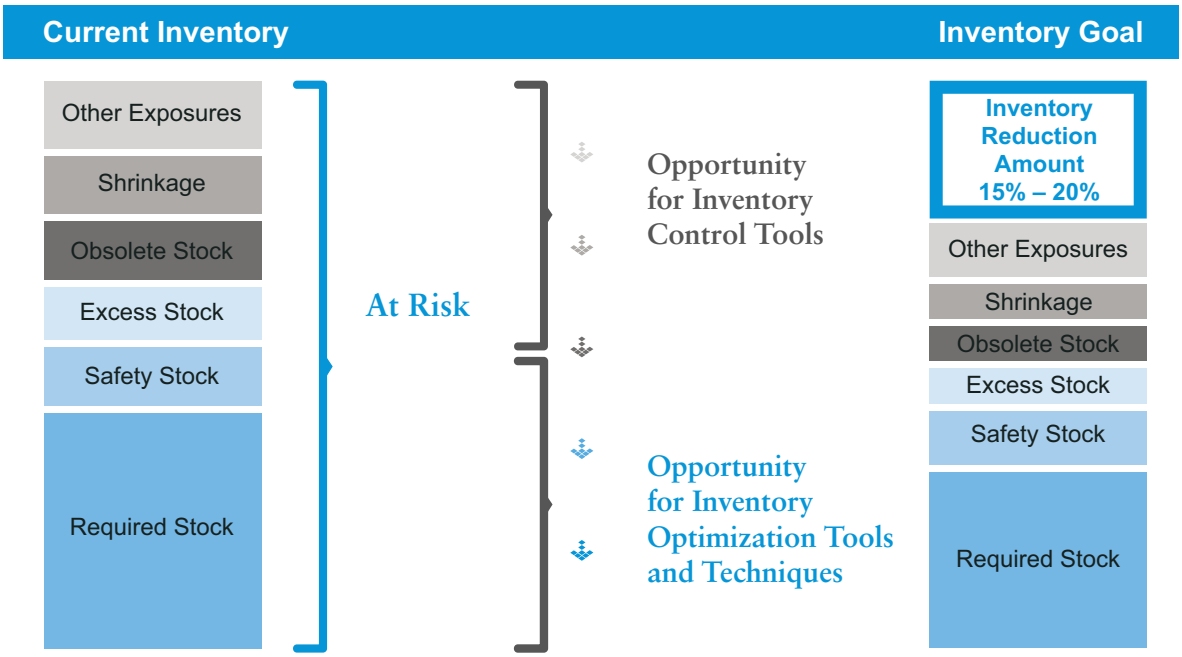
3) A reasonable forecast supported with agreed assumptions

- Inventory control serves as the foundation for effective inventory optimization.
- A well controlled inventory is required to ensure book to physical accuracy.

8. Target areas for reduction

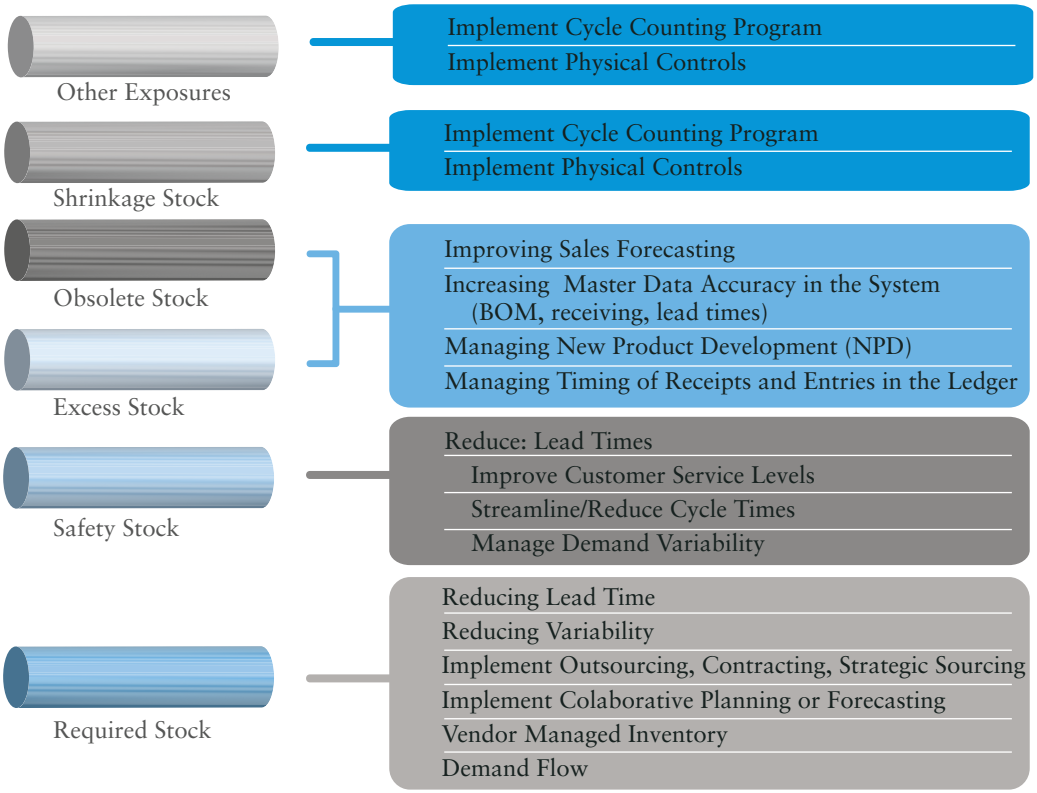
There are multiple inventory types that are good candidates for both inventory control and inventory optimization as outlined in Exhibit 7 Target Reduction Areas.

Exhibit 7
Target Reduction Areas



9. Example improvement methods

Exhibit 8
Typical Improvement Methods



Part 4: Managing Inventory Projects

10. Critical success factors

We recognize that every company and project are different. However, there are themes that we have found in our experience in the industry:

- Engage professional project leadership. Inventory management projects involve physical movement of parts, transactional processing, data analysis, and control redesign. All require unique skill sets.
- The best improvement teams individually or collectively have cross-functional experience and training in IT, audit, supply chain or inventory management, accounting, and operations.
- Any new process, system or method must retain a "golden thread", i.e. be fully auditable from an operational and transactional/accounting perspective through the entire transaction chain. This provides for maximum visibility.
- Provide executive sponsorship and communication.

11. Common findings

Top issues that drive inefficiencies in inventory include the following:

Forecasting and Planning Inventory is purchased from a plan or forecast. If this plan is incorrect it creates a natural excess in working capital.

Physical Control Lack of visibility, controls to physical inventory, cycle counting and periodic counts can adjust the books to an inappropriate level which can contribute to an inaccurate forecasted plan.

Timing of Processes Between Book and Physical If items are physically received in the warehouse but not booked to the ledger timely (or conversely shipped physically, but not received), a natural lag occurs misaligning the forecast by providing incorrect visibility.

Demand Management Incorrectly ordering items with no demand.

Process and Control Issues Including no physical control of pulls from stock, driving stock outs and causing expedites which are costly.

Cycle Time Limited use of integrated suppliers, drop ships, cross-docking when needed.

Exception Processes Exceptions cause many problems. Exception processes include: service orders, returns, warranty, repairs, scrap, and expedites and transfers between facilities.

Human Resources Proper organizational alignment, Finance and IT representation, as well as data analysis skills are critical for a well-functioning supply chain.

Systems Integration and reporting should be in place.

12. Leverage points

Leverage points that are often overlooked:

1. **Leverage Suppliers** Suppliers will tell you what they see with your competitors, if you ask! They can and do see things that they would change in your supply chain.

2. **Leverage Data Analysis** Data are key in highlighting slow moving, excess, and obsolete stock, common buys, variability in demand and supply, and product patterns.

3. **Leverage Best Practices** Including Radio Frequency Identification (RFID), Integrated Suppliers, Demand Management, Sales & Operations Planning, Cycle Counting. Procurement Cards, Outsourcing, Strategic Sourcing, Supplier Collaboration, Business Intelligence.

4. **Leverage Internal Know How** Asking the people who are responsible for processes will provide insight to the critical issues.

5. **Keep it Simple** Everything does not need to be automated. Get the process down, the people trained, and post a few key target metrics.

13. Assessment indicators

Typical indicators for assessing inventory concerns include the following:

Growth in Assets Is the inventory growth as a percentage of assets and revenue abnormal?

Customer Satisfaction Are internal or external customers complaining that parts, supplies, and items are not being provided on time?

Expedites Are there excessive or below normal expedites?

Lost or Stolen Is claim activity or purchase activity excessive?

Write-off/Reserve Activity Are write-off or reserves of excess, obsolete or missing goods excessive?

Visibility Is there visibility to inventory amounts, turnover, reserves, and activity?

Policies and Procedures Does everyone know the basic polices and procedures for inventory management?

APPENDIX

Report Limitations

- The benchmark study was based on data from 114 companies as listed in this Appendix. All data were obtained from publicly available studies such as annual reports and SEC filings.
- Companies were selected and assigned to 1 of 10 primary segments along the value chain. However, many of the participants market in more than one segment of the value chain thus skewing results. Best efforts were used to assign the appropriate segment.
- Companies were selected based on reporting non-commodity inventory (i.e., supplies) as a separate line item on the balance sheet to the financial statements.
- Companies have varying polices for capitalizing, expensing, and costing materials, supplies and other non-commodity inventory possibly contributing to different results.
- Since the turnover used in our method includes gross cost of goods sold which by default includes commodity and non-commodity cost of goods sold and pricing differences in costs of good sold, results may not be comparable.

COMPANIES BENCHMARKED

Integrated
BP p.l.c.
Conoco Philips
Chevron Corporation
Exxon Mobile Corporation
Hess Corporation
Marathon Oil Co.
Murphy Oil Corporation
Occidental Petroleum Corporation

Seismic
Core Labs, Inc.
Ion Geophysical Corporation
OYO Geospace Corporation

Drilling
Atwood Oceanics, Inc.
Diamond Offshore Drilling, Inc.
Ensco Offshore Drilling Company
Helmerich & Payne, Inc.
Nabors Industries Ltd.
Parker Drilling
Patterson UTI Energy, Inc.
Rowan Companies
Transocean Ltd.

Natural Gas Distribution
AGL Resources, Inc.
Centerpoint Energy
EGAS
Northwest Natural Gas
MDU Resources Group, Inc.
Piedmont
RGC Resources Company
Southern Union Company
South Jersey Industries
UGI Corporation

Pipeline
Energy Transfer Partners LP
The Williams Companies

Refining & Marketing
CVR Energy, Inc.
Frontier Oil Corporation
Sunoco, Inc.
Tesoro Corporation
Valero Energy Corporation

Engineering Project & Construction

Willbros Group, Inc.
Orion Marine Group, Inc.

Oilfield Services

Baker Hughes, Inc.
Bristow Group, Inc.
Cameron International, Inc.
Carbo Ceramics, Inc.
Dril-Quip, Inc.
Fluor Corporation
FMC Technologies
Halliburton Company
International Coal Group, Inc.
Key Energy Services
McDermott International Inc.
Mitcham Industries, Inc.
National Oilwell Varco
Oceaneering International, Inc.
Oil States International, Inc.
Schlumberger
Smith International, Inc.
Tetra Technologies, Inc.
T-3 Energy Services
Weatherford International, Ltd.

Exploration and Production

Apache Corporation
Cabot Oil & Gas Corporation
Energen Corporation
EOG Resources, Inc.
Forest Oil Corporation
New Field Corporation
Noble Energy, Inc.
Penn Virginia Corporation
Petroleum Development Corporation
Petroquest Energy, Inc.
Pioneer Natural Resources Company
Plains Exploration & Production Company
Range Resources Corporation
Southwestern Energy Company
Talisman Energy, Inc.

Utilities & Retail Energy Providers

Alleghany Energy, Inc.
Allete, Inc.
Alliant Energy Corp.
Ameren Corporation
American Electric Power Co., Inc.
Avista Corporation
Chesapeake Energy Corporation
Cleco Corporation
Con Edison, Inc.
Constellation Energy Group
Dayton Power and Light Company
Dominion Resources, Inc.
DTE Energy Company
Duke Energy Corporation
Edison International
El Paso Electric Company
Empire District Electric Company
Entergy Corporation
EQT Corporation
Exelon Corporation
First Energy Corporation
Florida Power and Light Company
Great Plains Energy, Inc.
IDA Corporation
MGE Energy, Inc.
Nisource, Inc.
Northeast Utilities
NSTAR
Pacific Gas & Electric
Pinnacle West Capital Corporation
Progress Energy
PP&L Corporation
Public Services Group
SCANA Corporation
Southern Company
Teco Energy
Wisconsin Energy Corporation
The AES Corporation
Westar Energy
Xcel Energy

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Exhibit 9
Turnover Data

	Industry Segment	Number of Companies	2009					2008				Change Mean Segment	Change Mean Company
			High	Low	Mean Segment	Mean Company	Range Segment	High	Low	Mean Segment	Mean Company		
1	Integrated	8	22.48	5.26	15.51	15.75	17.22	39.03	8.30	18.91	23.98	-17.95%	-34.32%
2	Seismic	3	13.66	1.09	4.34	5.33	12.57	16.04	1.53	6.09	6.66	-28.77%	-19.97%
3	Exploration & Production (E&P)	15	58.89	1.71	5.10	11.27	57.18	80.87	3.56	9.51	18.14	-46.39%	-37.87%
4	Drilling	9	30.87	2.00	8.33	16.02	28.87	30.33	2.49	9.98	18.38	-16.57%	-12.84%
5	Natural Gas Distribution (NGD)	10	182.68	42.55	54.01	72.14	140.13	261.56	51.07	81.30	103.99	-33.56%	-30.63%
6	Pipeline	2	57.91	40.07	29.42	48.99	17.84	357.81	85.57	65.90	221.69	-55.35%	-77.90%
7	Refining & Marketing (R&M)	5	224.90	108.43	185.39	166.13	116.47	424.18	186.29	350.12	304.07	-47.05%	-45.36%
8	Utilities and Retail Energy Providers (REP)	40	25.72	1.36	8.52	10.06	24.36	29.99	2.26	9.53	11.52	-10.56%	-12.67%
9	Engineering Project & Construction (EP&C)	2	277.39	208.87	262.61	243.13	68.52	604.45	305.42	543.98	454.94	-51.72%	-46.56%
10	Oilfield Services (OFS)	20	25.06	1.31	5.39	7.29	23.75	43.31	1.54	6.33	9.06	-14.84%	-19.54%
	Total	114	277.39	1.09	13.01	59.61	276.30	604.45	1.53	16.65	117.24	-21.90%	-49.16%

Segment turns were obtained by including all the balance sheet values of a segment into the turns computation
Company turns were obtained by using a simple arthimetic average of individual company turns within a segment.

ABOUT KOPAC CONSULTING, LLC

How is Kopac different?

Kopac Consulting is a Houston based company providing solutions to energy related companies in North America. Our leadership has more than 20 combined years of consulting, professional accounting, and industry experience. We are measurably improving companies with disciplined thought and impeccable execution.

Innovative Services

Kopac Consulting provides five groundbreaking tools for lowering costs, increasing revenues and assessing business value:

1. ***Revenue Assurance*** - Our proprietary Revenue Assurance Control Desk (RACD®) solution
2. ***Capital Planning & Investment***^{SM} - Our method to provide maximum visibility of investment decisions and deal flow
3. ***Managed Project Solutions***^{SM} - Special project management and technical support for your accounting reconciliations, implementations, recoveries, and due diligence support
4. ***Supply Chain Management*** - Our SCM solutions support key systems such as: Supply Chain Risk Management, Process Improvement, Strategic Sourcing, and Inventory Control and RFID
5. ***Valuation Services*** - Valuation of your company in support of transactions related to company or asset sales, purchases, or business combinations—mergers & acquisitions especially for energy and related industries, both small and large. Support to meet financial requirements related to FASB Standards and International Financial Reporting Standards

Commitment to Success

Kopac consultants will exercise individual initiative in solving your company's problems. Our consultants are trained to make value judgments. They will separate the essential from the non-essential and prioritize their time and attention in tackling the biggest problems first.

Kopac only hires experienced proven problem-solvers. All full time employees have masters or professional degree, a CPA or another professional designation; and extensive energy industry and professional service firm experience.

Energy Industry Expertise

Kopac offers specialized energy expertise across multiple segments including geological and geophysical; oilfield services, exploration and production; transmission and distribution; refining and marketing; power generation, regulated utility and deregulated retail energy providers; and trading and marketing.

Integrated Perspective

Successful business improvement must integrate throughout your entire organization. Any new project must work harmoniously with your organization's current Operations, Accounting and Finance, and Engineering departments.

Integrity and Confidentiality

Kopac adheres to strict business conduct and industry standards of confidentiality. We will complete your project expeditiously. When you engage Kopac you enlist a partner. You should expect our help in permanently improving your business. Your company will receive what it needs to prosper.

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9595 Six Pines Drive, Suite 8210 | The Woodlands, TX 77380
www.KopacConsulting.com | 832.631.6101