

Chemical Strategies Partnership  
12th Annual Chemical Management Services  
Workshop

*General Motors - Changing the CMS Business Model  
to Include Indexing*

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## Why Index?

*Pricing pass through is not acceptable in CM contracts  
- does not meet CM definition, makes budgeting  
difficult, GM assumes all risk*

*Commodity price increases have hurt suppliers in past  
fixed price contracts*

*Indexing up to 20 key chemicals per plant\* (80% of  
chemical spend) to accepted, industry published  
indices provides a way to manage the uncertainty of  
commodity products*

*Remaining products are fixed price over contract*

*\* more for complexes*

## *How does indexing work?*

*Supplier, plant identify top products subject to commodity pricing fluctuations in each plant (e.g., hydraulic fluid, soluble cutting oil, purge solvent)*

*Applicable indices jointly agreed upon **prior to the final bid** (e.g., ICIS paraffinic base oil) by CM's, WFG, GPSC*

*Full or partial indexing determined (e.g., 100% for hydraulic, gear oil, 50% for soluble oil due to water content)*

*At beginning of contract, initial prices are obtained for each indexed product, initial index value is set*

*Six month averages of each index are calculated and the % difference between the current average and previous index is applied to the next six month's pricing of the indexed chemicals*

## *Some Examples*

	% of chemical indexed	Initial value	6-month adjustment	new price at 6 months	12-month adjustment	new price at 12 months
Base Oil Index		100	Avg. = 110		Avg. = 80	
Hydraulic Fluid	100%	\$3.00/gallon	10% up	\$3.30/gallon	27.2% down*	\$2.40/gallon
Soluble Cutting Oil	50%	\$5.00/gallon	5% up	\$5.25/gallon	13.6% down*	\$4.50/gallon

\* Relative to previous 6-month value

# Selecting and Verifying Indices

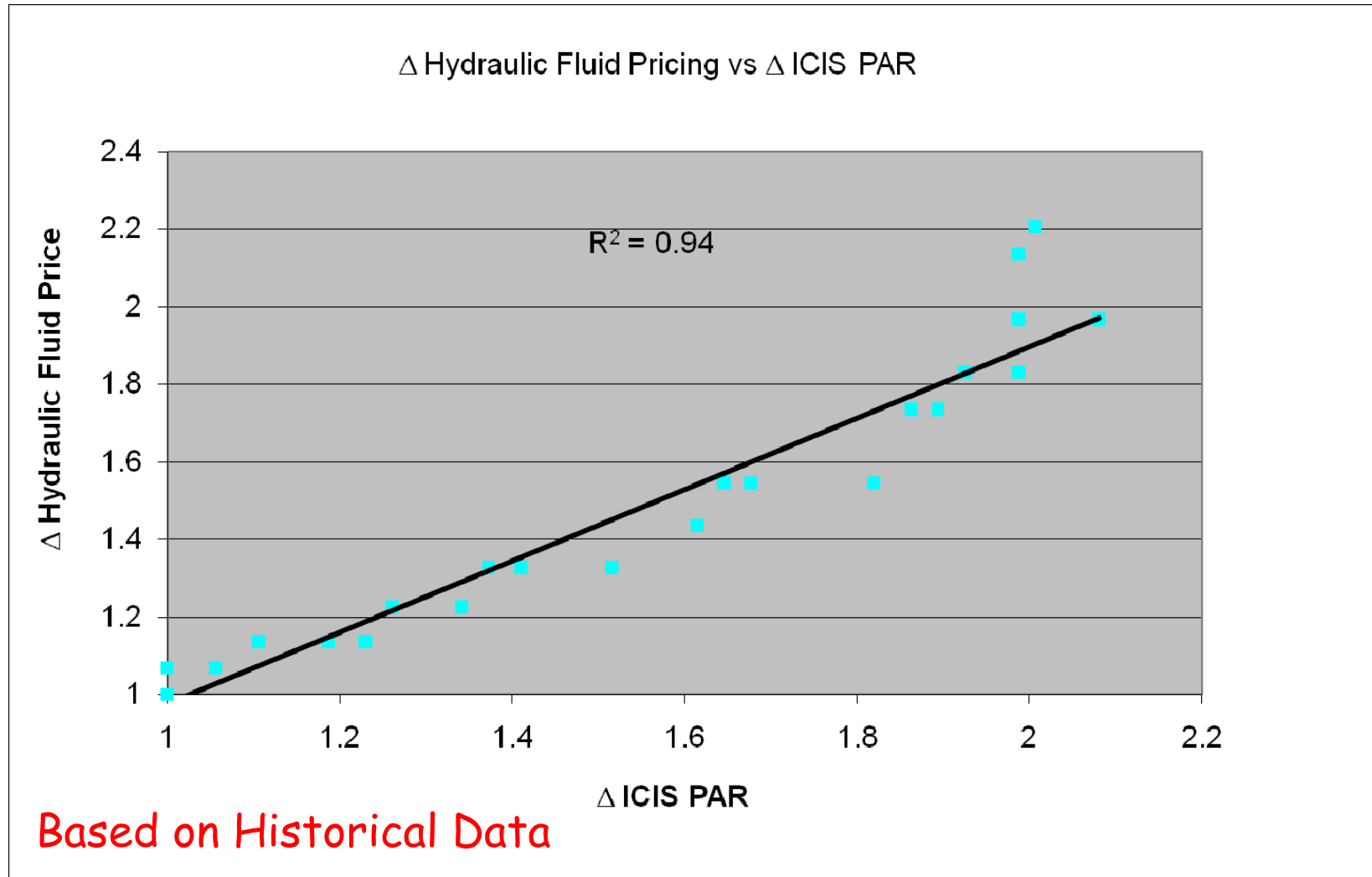
## *Candidate indices*

- *Close as possible to actual raw material used in indexed product (e.g., base oil index preferable to crude oil index for hydraulic fluid)*
- *Understand implications of both supply and demand (other industries affecting demand)*

## *Verify indices using previous pricing history of high-volume products (good $r$ -squared value)*

- *Understand "artificial" pricing adjustments may occur (e.g., holding down pricing to gain market share)*

# Validating an Index - Lubes



## *Validating Indices - Solvents*

*Will require a "blended" index*

*Most purges are not 100% of one solvent or another, but a mix of several*

*Use product MSDS to obtain compositional info*

*An example: solvent is 30% acetone, 10% MEK (40% ketones total), 20% acetates, and 10% each of 4 assorted aromatics (40% aromatics total), the composite index ratio would be:*

*0.4 (acetone current/acetone initial) +*

*0.2 (butyl acetate current/initial) +*

*0.4 (xylenes current/initial)*

# *Verifying Plant Indexed Product Lists*

*CM provides initial product list, % indexable, index to be used*

- Top spend (>>1% of total)*
- Correlated with published index*
- Commodity has shown price volatility*

*Verify products and indices are reasonable - technical judgment and/or pricing history*

*Verify correctness of %*

- Value % of product - related, but not necessarily equal to compositional %*
- Cross check with other CM's % on identical products*
- Develop expected range for product classes (e.g., soluble oils)*



## *Other Indexing Details*

*Understand that this is not an exact science*

- (% of a product's contribution to total chemical spend) times (value % of indexed commodity in the product) times (% uncertainty in this value %) times (% change in the index) will likely equal a pretty small percentage!*

*Goal is to take major risk out of commodity price fluctuations for CM and GM*

# ICIS Summary Tab

Contract Period	INDEX PRICE CORRECTION FACTOR						
	ICIS BASE OILS – PAR	ICIS BASE OILS – NAP	ICIS CAUS TIC	ICIS ACE TONE	ICIS BUTYL ACE TATE	ICIS NAP THAS	ICIS XYLE NES
JULY 2007	0.964	0.996	1.155	1.101	0.913	1.142	1.178
JANUARY 2008	1.030	1.028	1.092	0.947	1.103	1.031	0.855
JULY 2008	1.063	1.046	1.187	1.092	1.078	1.145	1.180
JANUARY 2009	0.000	0.000	0.000	0.000	0.000	0.000	0.000
JULY 2009	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Running adjustments, 10/7-10/10	1.407	1.311	1.401	1.360	1.036	1.071	1.096

**To transfer to the plant's CMFT, copy cells D through J for the appropriate row and use the "paste special" command, "values and number format" option**

## CM Financial Tool (Tab 9)

			INDEX PRICE CORRECTION FACTOR									
Contract Period			ICIS BASE OILS - PAR	ICIS BASE OILS - NAP	ICIS CAUSTIC	ICIS ACETONE	ICIS BUTYL ACETATE	ICIS NAPTHAS	ICIS XYLENES			
JULY 2007			0.950	1.100	1.000	1.200	1.000	1.000	1.100			
JANUARY 2008			0.000	0.000	0.000	0.000	0.000	0.000	0.000			
JULY 2008			0.000	0.000	0.000	0.000	0.000	0.000	0.000			
JANUARY 2009			0.000	0.000	0.000	0.000	0.000	0.000	0.000			
JULY 2009			0.000	0.000	0.000	0.000	0.000	0.000	0.000			
JANUARY 2010			0.000	0.000	0.000	0.000	0.000	0.000	0.000			

PRODUCT INDEX BREAKDOWN											July 2007		
Indexed product Name	HMCS Number	Initial Contract Unit Price	% Para Base Oil	% Nap Base Oil	% Caustic	% Acetone	% Butyl Acetate	% Naptha	% Xylenes	% Non-Indexed	TOTAL (must equal 100%)	Overall Adjustment Factor	July 2007 Unit Price
Acme Hydraulic Fluid		\$4.000	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.950	\$3.800
Acme Soluble Cutting Oil		\$10.000	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	100.00%	1.050	\$10.500
Acme Purge Solvent		\$6.000	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	50.00%	0.00%	100.00%	1.150	\$6.900
Product #4		\$0.000	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	1.000	\$0.000
Product #5		\$0.000	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	1.000	\$0.000

New Price = Old price x index price correction x % of indexed component

**NOTE: You can manually input data from ICIS file at any time to make projections of index affect on chemical budget**

# *How Price Adjustments Are Made*

*WFG notifies GPSC that "final" six-month CMFT with indexing is posted for plant on supplypower*

*WFG enters new pricing into CM Tool*

*GPSC amends purchase order as applicable*

*CMFT retains a history of indexing changes*

# *Indexing Changes, Clarifications*

*Period used will be November to April for July  
and May to October for January*

*Products introduced mid-contract will not be  
indexed until a full six-month cycle has  
passed*

# *Review of First Index Cycle*

## *At 8 months*

- Problems - rounding error in pricing - fixed by revised timing*
- Suggested improvements - none offered*
- No support or challenges on index choices*
- Some discussion, but no new indices to be added*

## *At 18 months*

- Extreme price volatility for some commodities*
- May shorten index period to quarterly, processing period from 2 months to 1 month*

# *Next Steps for Indexing*

## *Globally*

- *ICIS will be used in AP and GME*
- *Developing our indices where GM plants are located*
- *Indices can vary depending on the region.*
  - *State controlled*
- *Care needs to be taken when there are no published indices.*
- *Should be a joint process with your CMS provider.*

*Questions?*

*Comments?*

