

ACEIT 7.2 New Features Revealed

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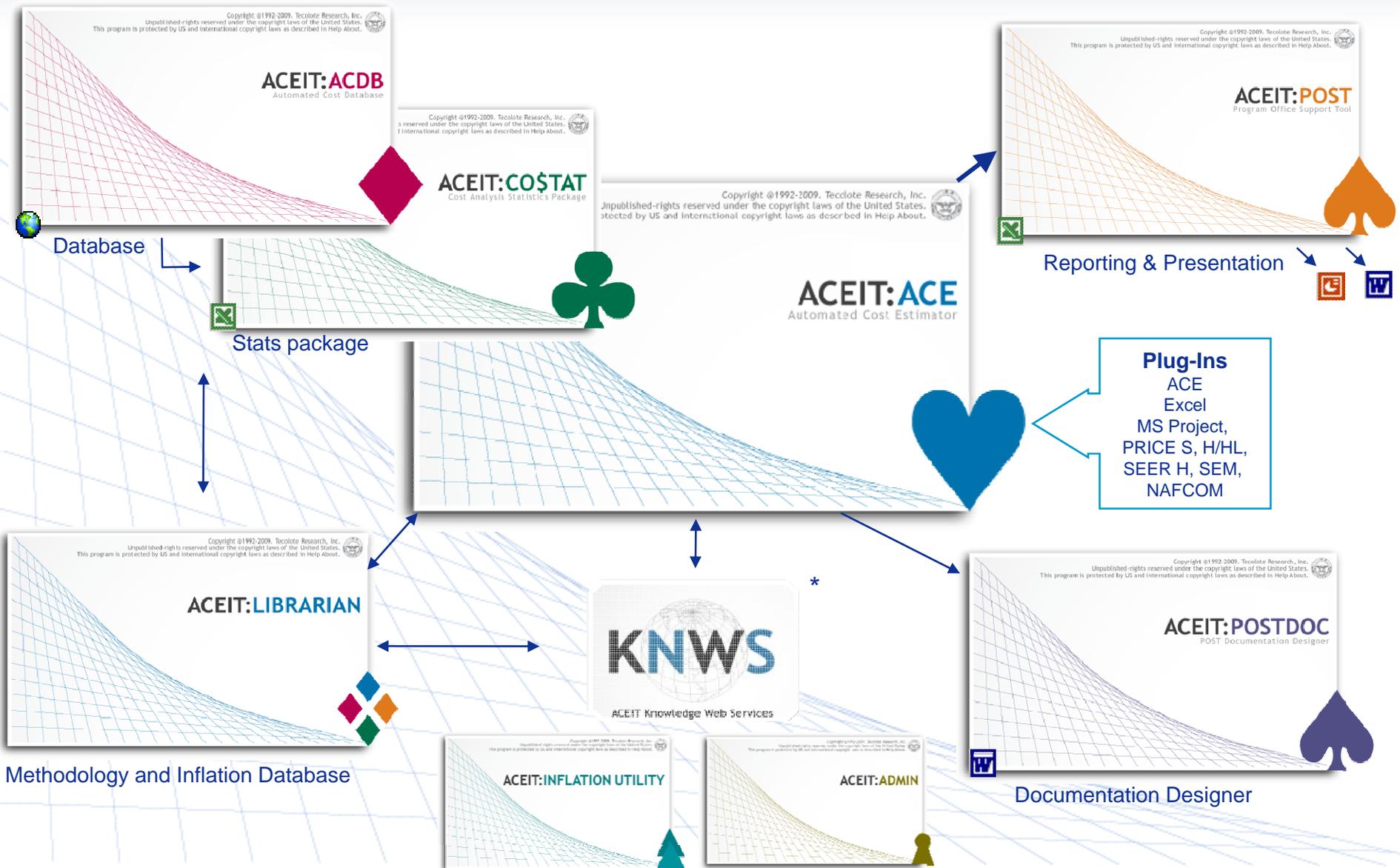
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Automated Cost Estimating Integrated Tools

ACEIT 7.2 Automated Cost Estimating Integrated Tools



■ ACE

- Window and Workscreen tabs ★
- Updated Traceback Navigator interface ★
- New Cat() function summarizes by category within the session
- Additional Session Analyzer tests
- System by Site Wizard enhancements
- Persistent results, bookmarks, and DEC results added to the Inputs/Results Viewer ★
- Introducing four new ways to phase RI\$K allocation results
- New RI\$K distributions – Student's t and Log-t
- Enhanced RI\$K Grouping and Correlation wizard

■ POST

- New Time Phased Row Delta report - yearly delta between target and selected row
- New RI\$K Convergence Chart - guidance on required number of risk iterations
- New RI\$K Fan Charts illustrate uncertainty by year (annual and cumulative)
- New Joint Probability Chart plots the joint probability between two rows ★

■ CO\$TAT

- Added support for Student's t and Log-t distributions
- Easy access to example files

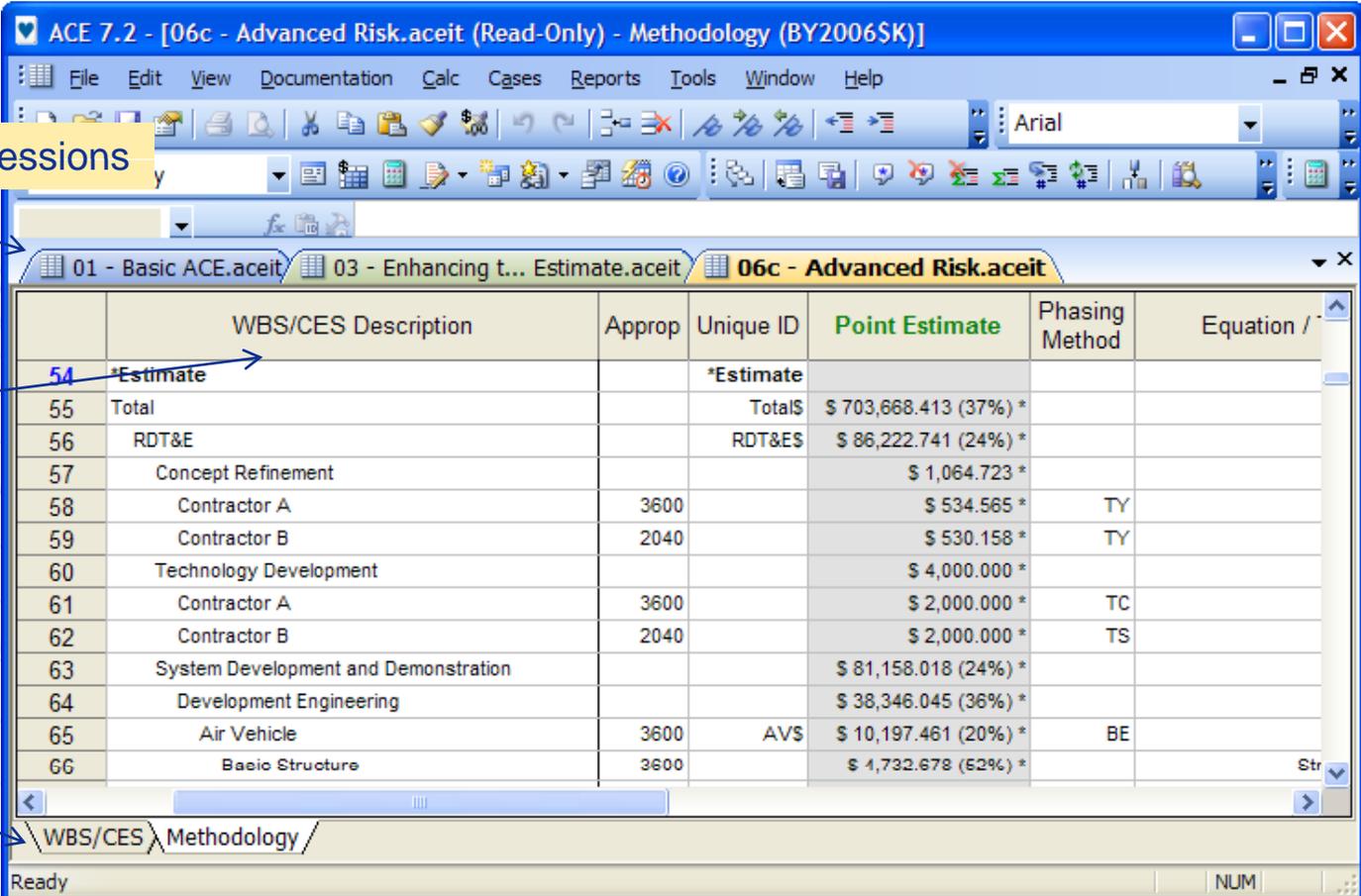
ACE New Features



Tabbed Session Windows

■ Improved Navigation

- **Window Tabs:** session, Inputs/Results Viewer (IRV), & reports
- **Workscreen Tabs:** at the bottom of the screen; tab order saved with the session



Window Tabs for open sessions

Right-click window tab options

Workscreen Tabs

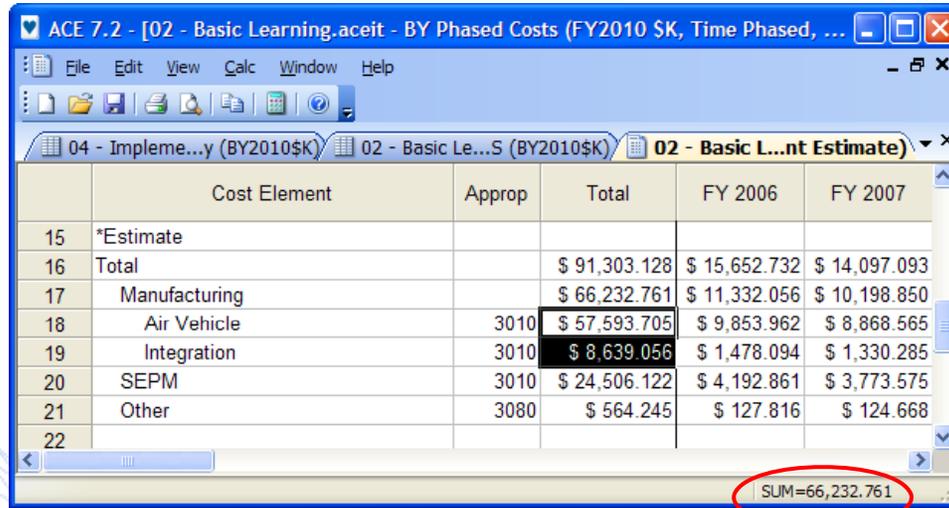
	WBS/CES Description	Approp	Unique ID	Point Estimate	Phasing Method	Equation /
54	*Estimate		*Estimate			
55	Total		Total\$	\$ 703,668.413 (37%) *		
56	RDT&E		RDT&ES	\$ 86,222.741 (24%) *		
57	Concept Refinement			\$ 1,064.723 *		
58	Contractor A	3600		\$ 534.565 *	TY	
59	Contractor B	2040		\$ 530.158 *	TY	
60	Technology Development			\$ 4,000.000 *		
61	Contractor A	3600		\$ 2,000.000 *	TC	
62	Contractor B	2040		\$ 2,000.000 *	TS	
63	System Development and Demonstration			\$ 81,158.018 (24%) *		
64	Development Engineering			\$ 38,346.045 (36%) *		
65	Air Vehicle	3600	AV\$	\$ 10,197.461 (20%) *	BE	
66	Basic Structure	3600		\$ 4,732.678 (52%) *		Str

WBS/CES Methodology /

Ready NUM

ACE 7.2 Enhancements

- ACE dynamically shows the sum of selected numbers on workscreens, Inputs/Results Viewer and Report Viewer.



ACE 7.2 - [02 - Basic Learning.aceit - BY Phased Costs (FY2010 \$K, Time Phased, ...]

	Cost Element	Approp	Total	FY 2006	FY 2007
15	*Estimate				
16	Total		\$ 91,303.128	\$ 15,652.732	\$ 14,097.093
17	Manufacturing		\$ 66,232.761	\$ 11,332.056	\$ 10,198.850
18	Air Vehicle	3010	\$ 57,593.705	\$ 9,853.962	\$ 8,868.565
19	Integration	3010	\$ 8,639.056	\$ 1,478.094	\$ 1,330.285
20	SEPM	3010	\$ 24,506.122	\$ 4,192.861	\$ 3,773.575
21	Other	3080	\$ 564.245	\$ 127.816	\$ 124.668
22					

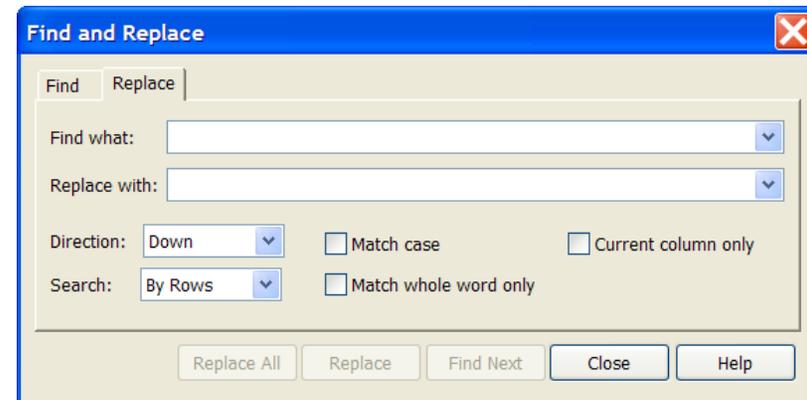
SUM=66,232.761

- Drop-down choice list available when the cursor enters a cell containing a choice list. A down-arrow will immediately appear so the user can click the arrow and select an item from the list.

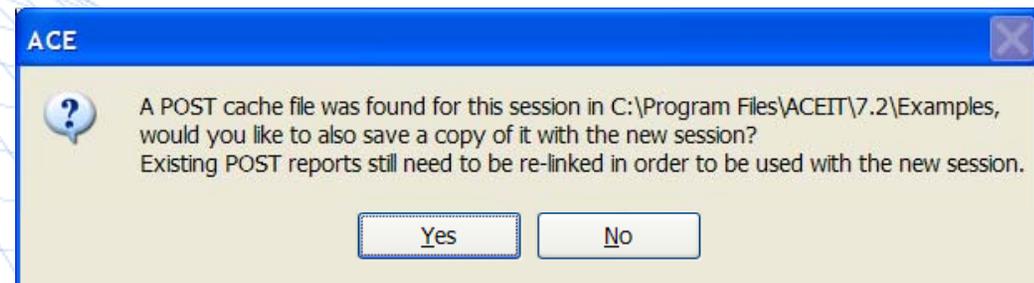
	WBS/CES Description	Point Estimate	Phasing Method	Equation / Throughput
26	*Estimate			
27	Total	\$ 542,830.714 *		
28	RDT&E	\$ 92,932.507 *		
29	Concept Refinement	\$ 1,147.824 *		
30	Contractor A	\$ 576.302 *	TY	[Cost Throughput]
31	Contractor B	\$ 571.522 *	BY	[Cost Throughput]
32	Technology Development	\$ 4,153.531 *	%	[Cost Throughput]
33	Contractor A	\$ 2,084.592 *	TY	[Cost Throughput]
34	Contractor B	\$ 2,068.938 *	SY	[Cost Throughput]
35	System Development and Demonstration	\$ 87,631.153 *	R	
36	Development Engineering	\$ 41,444.370 *	F	
37	Air Vehicle	\$ 10,958.768 *	A	

NOTE: Choice list feature can be enabled/disabled under Tools>User Options in the Sheet Behavior group

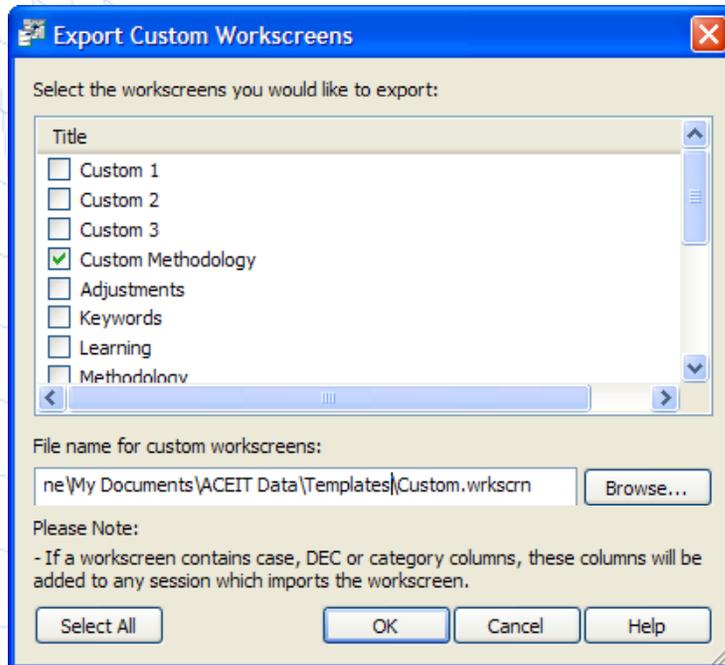
- Combined the **Find/Replace** feature into one tabbed dialog and modified it to remain open while editing the workscreen



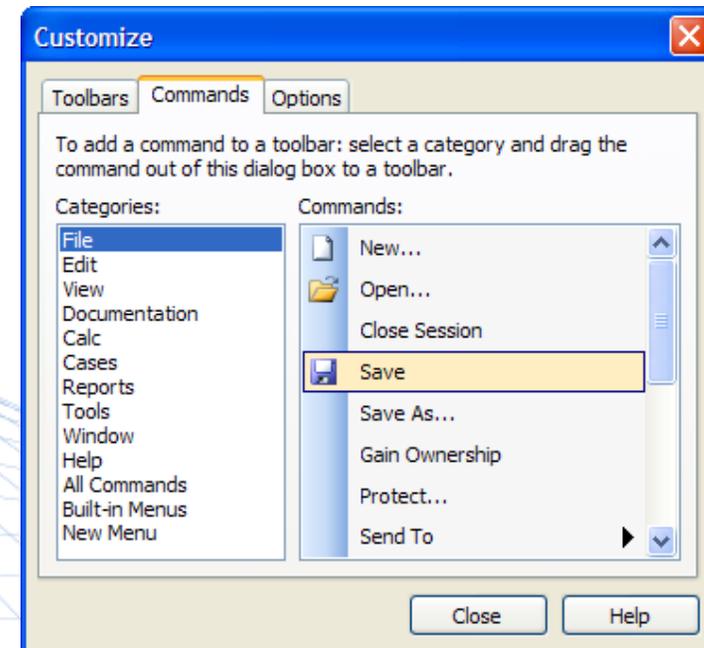
- Keep your **ACE and POST files in sync**. ACE File> Save As, will prompt to make a copy of the POST cache file also, if one exists



- Added **Export/Import Custom Workscreen** options to the View menu, to allow workscreen column arrangement to be saved for use in another session

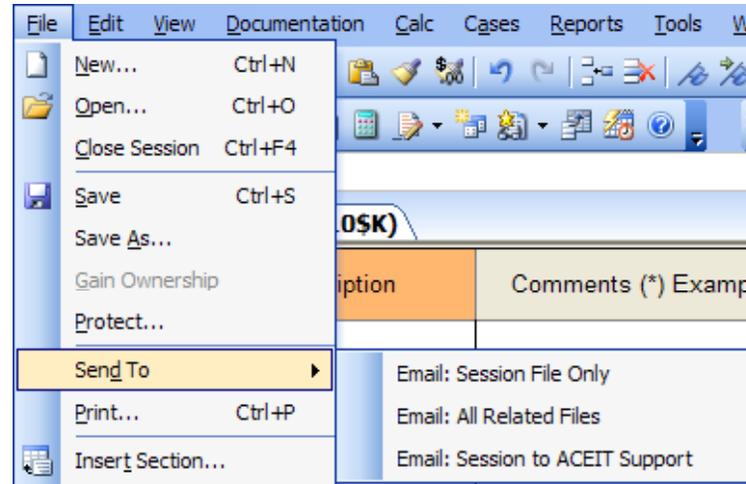


- Added a Customize option under **View>Toolbars** so that the user can **customize the ACE toolbars**



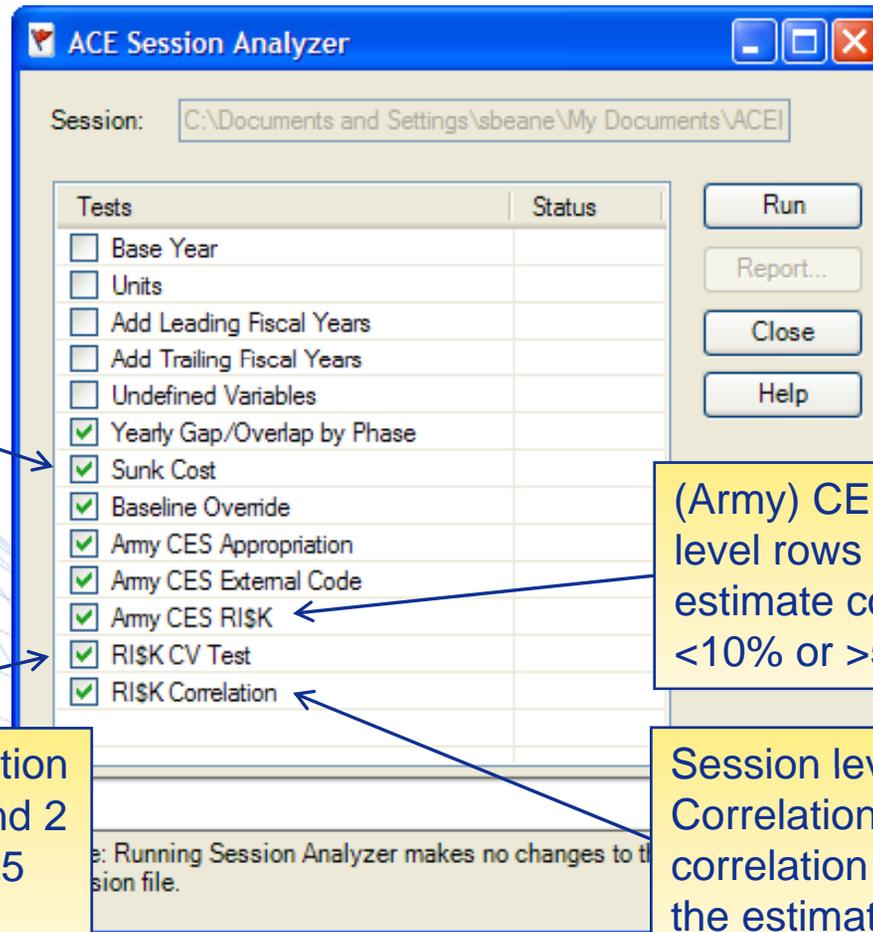
ACE 7.2 Enhancements

- Added **File > Send To Email** feature in ACE to allow sessions to be sent to e-mail directly from within ACE



- Added a new  **Results Format Painter** to paste the results format from one row onto other rows
- Added a new **Edit>Add Category** option for creating an unlimited number of category columns. With the new Cat() function you will be able to use category columns for reports and for summarizing within the session.
- Expanded the size limit of the **System by Site Wizard** from 50 by 50 to 500 by 500, enhanced the wizard to include the SiteSSCost function, added an option for the user to add sites as cases for SiteSSCost calls, and now up to ten sets of previously entered data are stored for future retrieval.

New Session Analyzer Tests



ACE Session Analyzer

Session: C:\Documents and Settings\sbeane\My Documents\ACEI

Tests	Status
<input type="checkbox"/> Base Year	
<input type="checkbox"/> Units	
<input type="checkbox"/> Add Leading Fiscal Years	
<input type="checkbox"/> Add Trailing Fiscal Years	
<input type="checkbox"/> Undefined Variables	
<input checked="" type="checkbox"/> Yearly Gap/Overlap by Phase	
<input checked="" type="checkbox"/> Sunk Cost	
<input checked="" type="checkbox"/> Baseline Override	
<input checked="" type="checkbox"/> Army CES Appropriation	
<input checked="" type="checkbox"/> Army CES External Code	
<input checked="" type="checkbox"/> Army CES RISK	
<input checked="" type="checkbox"/> RISK CV Test	
<input checked="" type="checkbox"/> RISK Correlation	

Buttons: Run, Report..., Close, Help

Message: Running Session Analyzer makes no changes to the session file.

Flags Sunk costs past the current year

(Army) CES RISK: flags top level rows where point estimate confidence level is <10% or >50%

Session level RISK Correlation: checks that correlation is defined within the estimate

RISK Coefficient of Variation test flags WBS level 1 and 2 rows with $CV < .1$ or $CV > .5$

- Updated the Traceback Navigator interface to an expandable treeview. More information is displayed at once.

Traceback Navigator (07 - Detailed LCC Estimate.aceit)

Row: 93: Navigation/Guidance

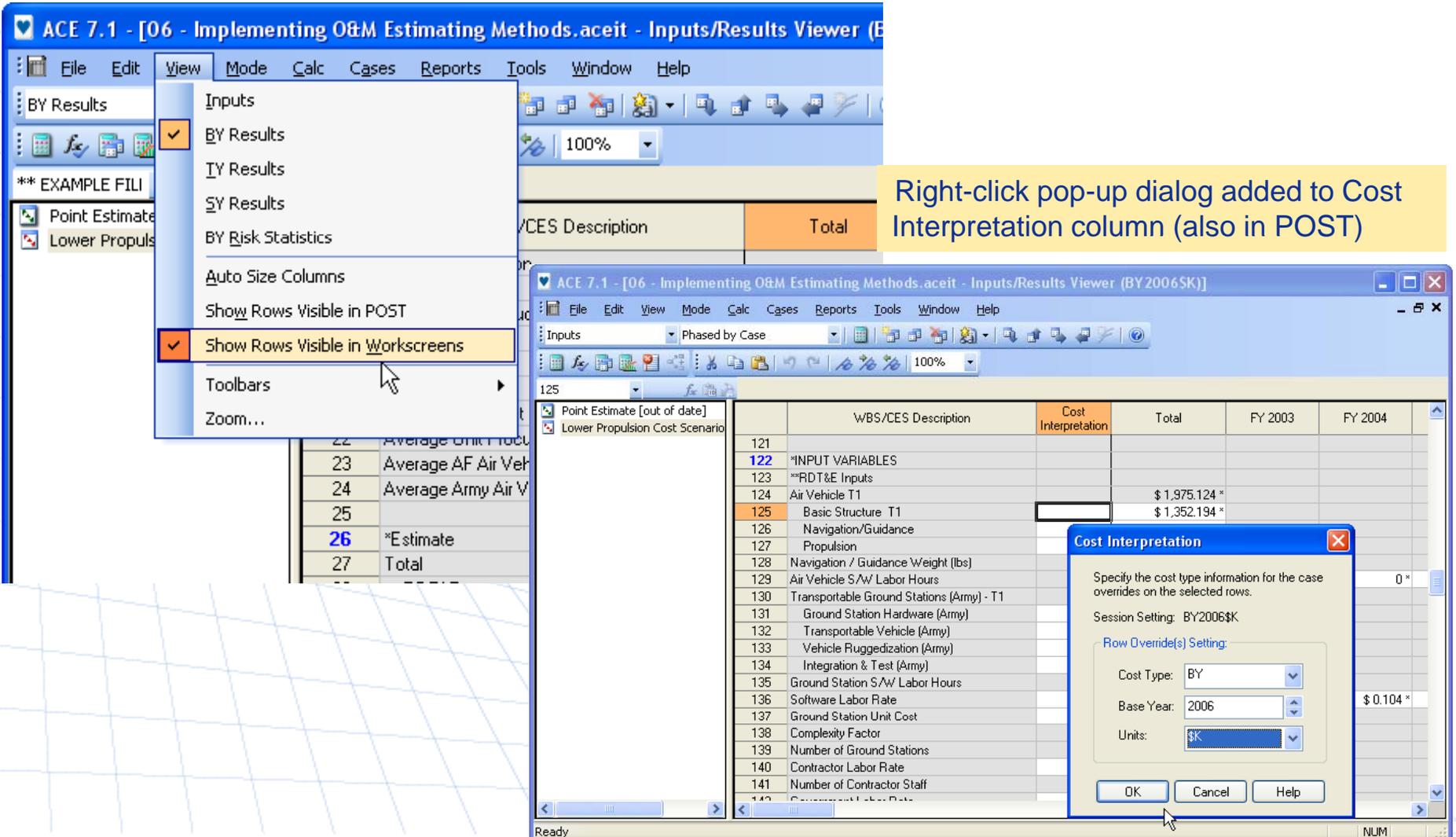
Case: Point Estimate

Traceback:

Description	ID	Equation	Total	Unwrapped Total	Appr...	Ph...	Used in Column
93: Navigation/Guidance							
Equation							
93: Navigation/Guidance		425.555+25.555*PCDWT	\$ 1,404.380	1064			
Start Date	aStartDate	(inherited) DevStartDate	01JUL2004	(na)			
Finish Date	aFinishDate	(inherited) DevEndDate	01NOV2007	(na)			
Service Identifier	SvcID	1	1	(na)			
Predecessors							
182: Navigation / Guidance Weight (lbs)	PCDWT		25	(none)		C	Equation / Throughput
204: Development Start Date	DevStartDate		01JUL2004	(none)		C	Start Date
206: Development End Date	DevEndDate		01NOV2007	(none)		C	Finish Date
Successors							
18: Air Force	AFRD\$	SumIf(SvcID, SvcID, @RDTE\$)	\$ 90,044.054			F	Equation / Throughput
91: Air Vehicle	AV\$	Sum of children	\$ 10,992.817		3600	BE	(Parent)

IRV Improvements (cont.)

IRV synchronized with the workscreen for hidden rows

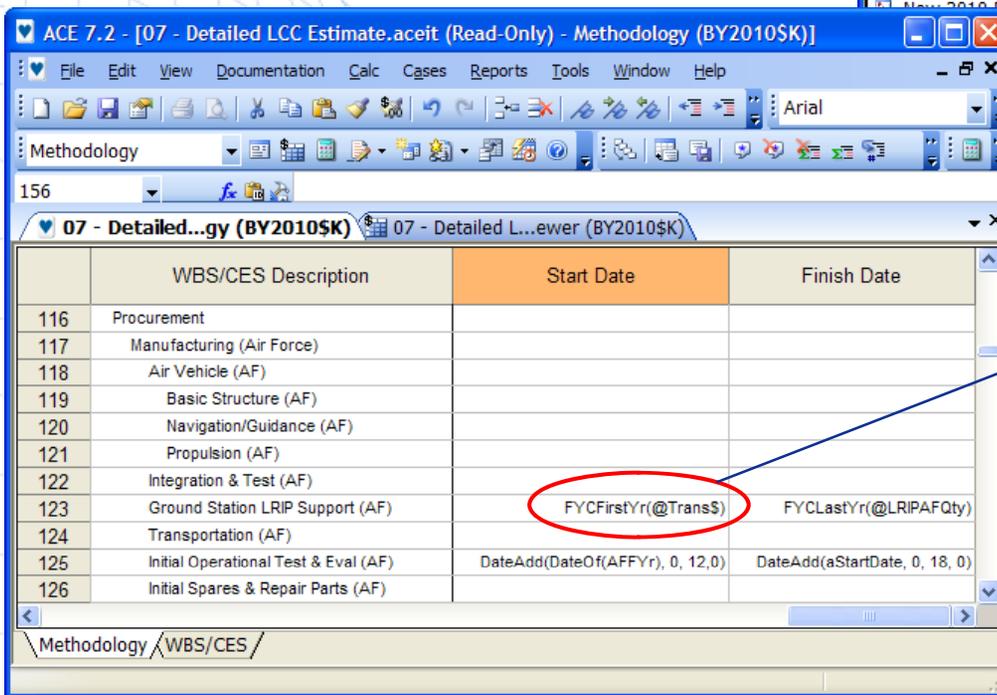


The screenshot displays the ACE 7.1 software interface. A 'View' menu is open, showing options like 'Inputs', 'BY Results', 'TY Results', 'SY Results', 'BY Risk Statistics', 'Auto Size Columns', 'Show Rows Visible in POST', 'Show Rows Visible in Workscreens', 'Toolbars', and 'Zoom...'. The 'Show Rows Visible in Workscreens' option is selected. In the background, a spreadsheet is visible with columns for 'WBS/CES Description', 'Cost Interpretation', 'Total', 'FY 2003', and 'FY 2004'. A 'Cost Interpretation' dialog box is open in the foreground, prompting the user to specify cost type information for case overrides. The dialog includes fields for 'Cost Type' (set to 'BY'), 'Base Year' (set to '2006'), and 'Units' (set to '\$K').

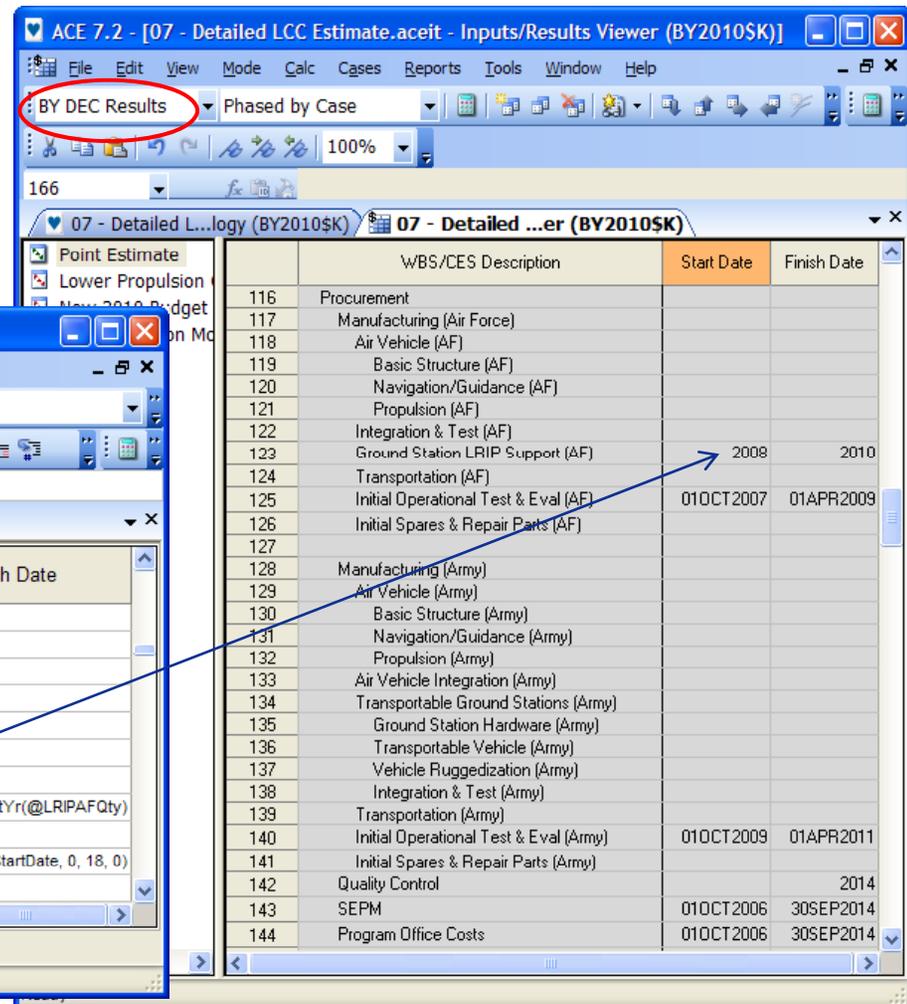
Right-click pop-up dialog added to Cost Interpretation column (also in POST)

Other IRV Improvements

- New option to lock case overrides (**Cases>Lock Cases**). Use Manage Cases or File/Protect to assign a password.
- **Multiple IRV windows** allowed
- **DEC Results** can be viewed in the IRV using View>BY DEC Results. Use View>Select DEC's to customize the view.



	WBS/CES Description	Start Date	Finish Date
116	Procurement		
117	Manufacturing (Air Force)		
118	Air Vehicle (AF)		
119	Basic Structure (AF)		
120	Navigation/Guidance (AF)		
121	Propulsion (AF)		
122	Integration & Test (AF)		
123	Ground Station LRIP Support (AF)		
124	Transportation (AF)		
125	Initial Operational Test & Eval (AF)	DateAdd(DateOf(AFFYr), 0, 12,0)	DateAdd(aStartDate, 0, 18, 0)
126	Initial Spares & Repair Parts (AF)		



	WBS/CES Description	Start Date	Finish Date
116	Procurement		
117	Manufacturing (Air Force)		
118	Air Vehicle (AF)		
119	Basic Structure (AF)		
120	Navigation/Guidance (AF)		
121	Propulsion (AF)		
122	Integration & Test (AF)		
123	Ground Station LRIP Support (AF)	2008	2010
124	Transportation (AF)		
125	Initial Operational Test & Eval (AF)	01OCT2007	01APR2009
126	Initial Spares & Repair Parts (AF)		
127			
128	Manufacturing (Army)		
129	Air Vehicle (Army)		
130	Basic Structure (Army)		
131	Navigation/Guidance (Army)		
132	Propulsion (Army)		
133	Air Vehicle Integration (Army)		
134	Transportable Ground Stations (Army)		
135	Ground Station Hardware (Army)		
136	Transportable Vehicle (Army)		
137	Vehicle Ruggedization (Army)		
138	Integration & Test (Army)		
139	Transportation (Army)		
140	Initial Operational Test & Eval (Army)	01OCT2009	01APR2011
141	Initial Spares & Repair Parts (Army)		
142	Quality Control		2014
143	SEPM	01OCT2006	30SEP2014
144	Program Office Costs	01OCT2006	30SEP2014

Category Function – Cat()

- SumIf() and If() functions can now test string values contained in a Category column by using the new **Cat()** function. Category columns can now be used for summary rows within the estimate and cost category reports (in ACE and POST).

Syntax: Cat([@Var,] "Cat Short Title" [, Inherits])

WBS/CES Description	Unique ID	Point Estimate	Phasing Method	Model	Service	SvcID (!) Service Identifier	Equation / Throughput
! Air Force (old way using DEC)		\$ 83,243.858 *	F		AirForce	1	SumIf(SvcID, SvcID, @RDTE\$)
! Army (old way using DEC)		\$ 2,780.883 *	F		Army	2	SumIf(SvcID, SvcID, @RDTE\$)
Air Force	AFRD\$	\$ 83,243.858 *	F		AirForce		SumIf(Cat("Service"), "AirForce", @RDTE\$)
Army	ArmyRD\$	\$ 2,780.883 *	F		Army		SumIf(Cat("Service"), "Army", @RDTE\$)
Air Force and Model A		\$ 41,415.497 *	F				SumIf(AND(Cat("Service")="AirForce", Cat("Model")="ModelA"), 1, @RDTE\$)
Marines		\$ 23.000 *	F	Model B			If(Cat("Model")="Model B", 1, 2)

Other Examples:

- SumIf(Cat("Appn"), "RDTEA", @Total\$) - Returns sum of all rows under "Total\$" with RDTEA.
- SumIf(OR(Cat("Service")="AirForce", Cat("Service")="Army"), 1, @Total\$) - Returns the sum of all rows that have a category code of "AirForce" or "Army" in the Service category column.

NOTE: Cat() uses the short, not long column titles. The short title may not contain **double quotes**. The long title can contain any character.

Vertical Lookup Function – VLookup()

- Added a **VLookup()** function which searches for a value stored in the first FY column of the DataTable, and returns a value from the specified column (*col_index*) in the located row.

Syntax: VLookup(lookup_value, @DataTable, col_index, num_rows)

	WBS/CES Description	Unique ID	Point Estimate	Equation / Throughput	FY 2003	FY 2004	FY 2005
16	Number of Fuel Tanks needed for HW with Qty = 2		1.000 *	VLookup(2, @HWRReq, 2, num_rows)			
17	Number of Fuel Tanks needed for HW with Qty = 8		2.000 *	VLookup(8, @HWRReq, 2, num_rows)			
18	Number of Fuel Tanks needed for HW with Qty = 10		2.000 *	VLookup(10, @HWRReq, 2, num_rows)			
19	ManPower needed for HW with Qty 17		8.000 *	VLookup(17, @HWRReq, 3, num_rows)			
20	ManPower needed for HW with Qty 50		8.000 *	VLookup(50, @HWRReq, 3, num_rows)			
21							
22	*INPUT VARIABLES	*IN_VAR					
23	*** Fuel Tanks and Manpower needed by Qty				Qty	Fuel Tanks	Manpower
24	HW Fuel and Manpower Matrix	HWRReq	0.000 *				
25	HW Qty 1-5			[Input Throughput]	5	1	2
26	HW Qty 6-10			[Input Throughput]	10	2	4
27	HW Qty 11-15			[Input Throughput]	15	4	6
28	HW Qty 16-20			[Input Throughput]	20	6	8
29							
30	Number of rows for HWRReq matrix	num_rows	4.000 *		4		

- Note:** When the lookup_value is not an exact match, VLookup in ACE returns the next largest value in the col_index, Excel returns the next smallest.

Functions and Phasing Methods

- New argument for the **DateAdd(Date, Year [, Month] [,Day] [,Truncate])** function added to recognize and operate on partial years and months.
 - Truncate=1 truncates fractional portion of years and months (**default prior to ACE 7.2**)
 - Truncate=0 or blank operates on partial years/months being added (new default behavior)

Examples:

- DateAdd(01May2008,1.3) will now return 18Aug2009
- DateAdd(01May2008,1.3, 0, 0, 1) returns 01May2009

- New **FYUnitFactor()** function to return the ACE session units as a factor (i.e., 1, 1000, 1000000, 1000000000)
- New **RandBetween(LowValue, HighValue[, IsInteger])** function to return a random number between the two numbers you specify

Uncheck the box to cause the random number to be repeated for subsequent calculations

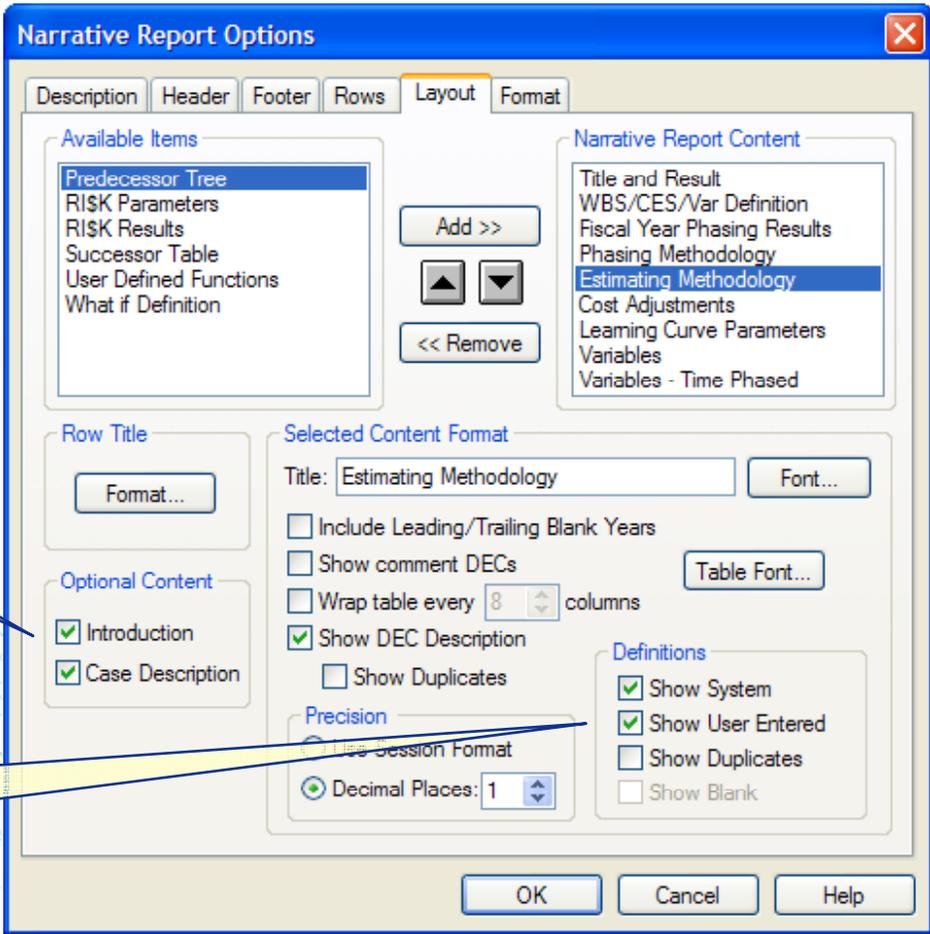


Documentation and Reporting

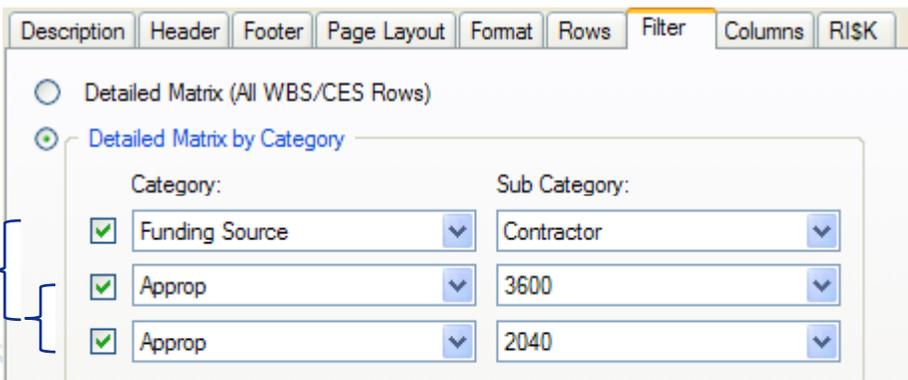
- Added an optional **Case Description** field to the Add, Copy, and Rename Case dialogs to enter/edit a case description (up to 500 chars.)
- Added an optional **DEC Description** field to the DEC dialog (up to 500 chars.)
- **Narrative Report improvements:**
 - added a “Page x of x” option for the report footer

Include Introduction, Case and DEC descriptions

Include/exclude User Entered definitions



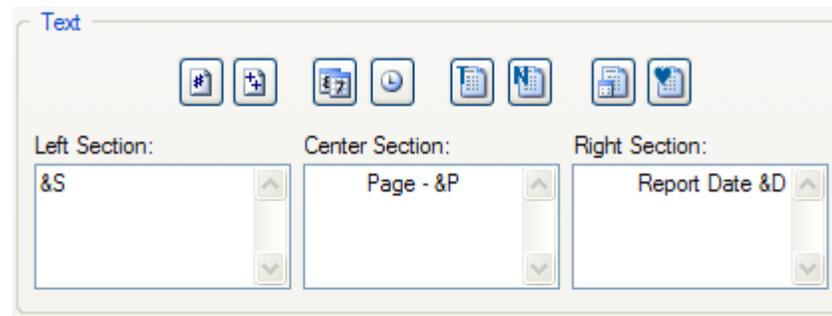
- **Reporting by Category** now allows up to **three** Category and value specifications



Category:	Sub Category:
<input checked="" type="checkbox"/> Funding Source	Contractor
<input checked="" type="checkbox"/> Approp	3600
<input checked="" type="checkbox"/> Approp	2040

- Support **multi-select non-continuous rows** for reports created with the "Selected Row Range" option on the Rows tab

- Provided **icons** for putting date, page #, etc. in the Header and Footer on reports



- **ACE built-in editor:**
 - Added right-click menu options for common commands such as cut, copy, paste
 - Now supports the creation and modification of:
 - Tables
 - Bullet lists
 - Numbered lists

Case Overrides Report

Two format options

Multi-Case (Total Overrides)

Case Overrides Report Options

Description | Header | Footer | Page Layout | Format | Rows | Columns

Type of Report

Show total overrides for selected cases

Show total and yearly overrides for a single case

Select Case(s) With Case Overrides

Cases

Lower Propulsion Cost Scenario

New 3010 Budget and AF Buy Quantities

Ground Station Mods

07 - Detailed LCC Estimate.aceit - Multi-Case (Total Overrides) (FY2010 \$K, Tota...

File Edit View Calc Window Help

07 - Detailed L...logy (BY2010\$K) | 07 - Detailed L..., For 2 Cases

	WBS/CES Description	Approp	Lower Propulsion Cost Scenario	Ground Station Mods
1	Ground Station S/W Labor Hours			10000
2	Complexity Factor			1.1
3	Number of Ground Stations			3
4	Propulsion Unit Cost	3010	450 BY2005 \$K	

Ready

Single-Case (Phased Overrides)

07 - Detailed LCC Estimate.aceit - Single Case (Phased overrides) (FY2010 \$K, Total and Yearly Overrides, For case: New 3010 ...

File Edit View Calc Window Help

07 - Detailed L...logy (BY2010\$K) | 07 - Detailed ...uy Quantities

	WBS/CES Description	Approp	Cost Interpretation	Total	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
1	Total Budget								
2	Procurement Budget								
3	3010 Budget	3010	TY\$K		0	0	20000	20000	20000
4	Total Air Vehicle Buy Quantity								
5	Air Force Buy Quantities								
6	Low Rate Initial Production				0	0	1	1	2
7	Full Rate Production								0

Ready

- Added the **Student's-t and Log-t distributions** in ACE and CO\$TAT. These are the “fat-tail” versions of the normal and lognormal. Added a **Degrees of Freedom column** for use in the specification.
- Added a **"High Truncation"** column for RI\$K distributions (off by default). Requires a value (not %).
- Added the capability to obtain risk results when the point estimate equals 0, on a row-by-row basis. To turn on this new feature, enter **Yes** in the new column **"Allow RI\$K when PE=0"**
 - Off by default for backwards compatibility
 - When turned on, may require low truncation set to “off”

- **Enhanced the Grouping and Correlation wizard**, walks the user through adding correlation to WBS elements or Input Variables
 - New options for easily correlating WBS elements or Input Variables that are not already members of a correlation group, and put a specified correlation (*default 0.25*) on these rows

Grouping and Correlation Wizard - Step 1

This wizard helps you apply correlation to rows in your estimate that contain uncertainty. You can create a group of related elements and assign a correlation value, create a group strength vector, or create a correlation matrix. Note that group correlation is applied in addition to any existing functional correlation.

Manually create new group
 Apply correlation to WBS elements
 Apply correlation to Input Variables
 Edit existing group

< Back Next > Cancel Help

Grouping and Correlation Wizard - Step 2

Please select the members for group

Group Name:

Show Section: Show Ungrouped Rows Only Show Rows with Uncertainty Only

Session WBS/CES:

Row	WBS/CES Description	Group	RI\$K Form	Unique ID	Point Es
102	Air Vehicle		Normal		\$ 3,309.
103	Mobile Ground S...		Normal		\$ 382.
108	DT&E		Triangular		\$ 9,141.
110	Test Facilities		Normal		\$ 342.
112	Construct/Conv...		Uniform	Const\$	\$ 11,426.
113	Equip ACQ/Mod...		Normal		\$ 3,427.
114	Other Government...		Uniform		\$ 1,916.
125	Initial Operational ...		Triangular		\$ 5,146.
140	Initial Operational		Triangular		\$ 8,577.

Add Remove

Selected Items

Row	WBS/CES Description	RI\$K Form	Unique ID	Point Estim...

< Back Next > Cancel Help

- **Enhanced the Grouping and Correlation wizard (cont.):**
 - New option for entering a full correlation matrix and let ACE pick the appropriate vector as the Group Strength

Grouping and Correlation Wizard Step 3

You may choose to do the following:

Assign the same correlation to all elements:

Enter individual group strengths.
If you specify a dominant element with a "D", the remaining entries are the correlation with that element.

Enter a correlation matrix.
ACE will identify the dominant element and column of correlations that most closely replicates the entered matrix. NOTE: Your entered values are NOT SAVED. To save, copy/paste to a convenient location.

Automatically display strength column.

Row	WBS/CES Description	Total	Strength	103	112	113
103	Mobile Ground Station	\$ 382.427 *	D	1.0	.25	.3
112	Construct/Convers/Expans	\$ 11,426.405 *	.25	.25	1.0	.22
113	Equip ACQ/Modern (Govt	\$ 3,427.921 *	.3	.3	.22	1.0

< Back Next > Cancel Help

Grouping and Correlation Wizard Step 4

The box below displays the changes that will be made to your session.

Session WBS/CES:

Row	WBS/CES Description	Group	Strength	RI\$K Form	Unique ID
103	Mobile Ground St...	NewGroup	D	Normal	
112	Construct/Conve...	NewGroup	.25	Uniform	Const\$
113	Equip ACQ/Moder...	NewGroup	.3	Normal	

Group	Strength
NewGroup	D
NewGroup	.25
NewGroup	.3

Information transferred to the RI\$K workscreen

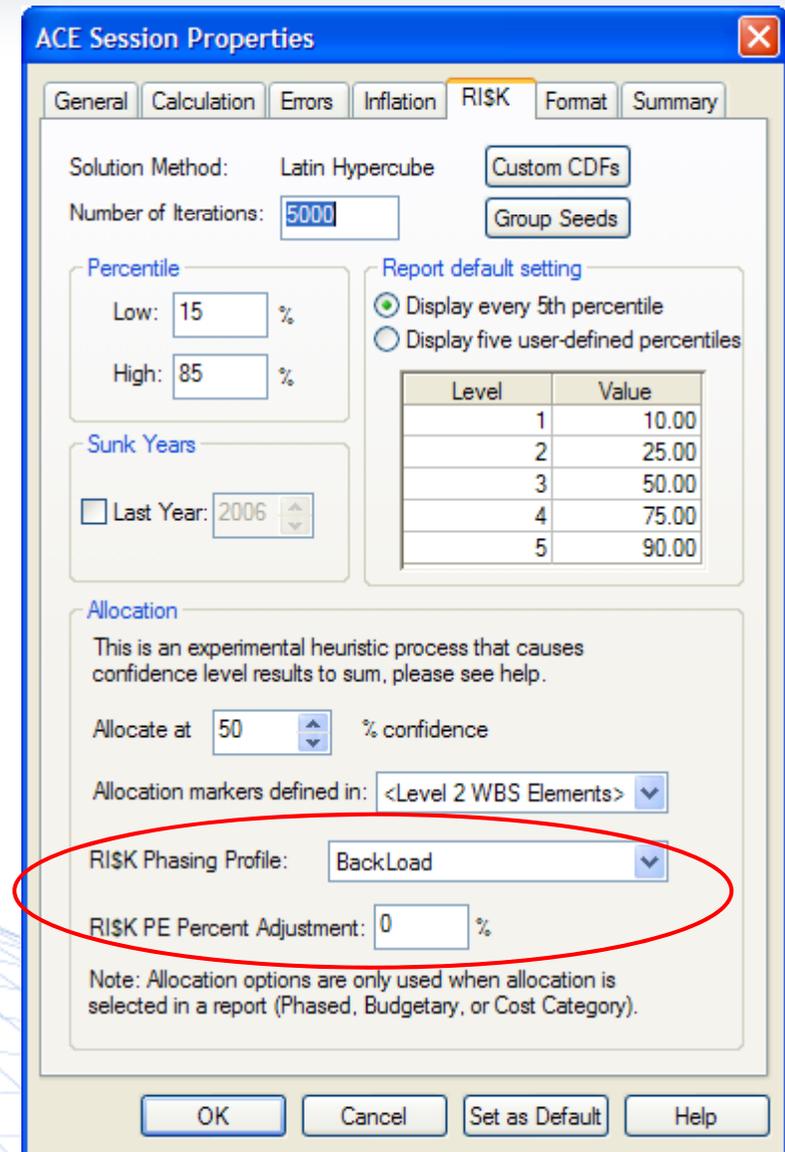
Note: ACE stores the group strength, which is the square root of the correlation.

Create Another Group

< Back Finish Cancel Help

Phasing RI\$K allocated dollars

- RI\$K phasing profile options are on the File Properties RI\$K tab:
 - Prorate (*default*)
 - BackLoad
 - FrontLoad
 - FullLoad
 - StretchLoad
- The phasing profile can be specified at the **session** level and overwritten at the **row** level using the column, **RI\$K Phasing Profile**
- **RI\$K PE Percent Adjustment** spreads available RI\$K dollars by adjusting the point estimate (PE) BY phased results by the specified percentage. The default is "0". This field is ignored when applying the Prorate method.



ACE Session Properties

General Calculation Errors Inflation **RISK** Format Summary

Solution Method: Latin Hypercube

Number of Iterations:

Percentile

Low: %

High: %

Sunk Years

Last Year:

Report default setting

Display every 5th percentile

Display five user-defined percentiles

Level	Value
1	10.00
2	25.00
3	50.00
4	75.00
5	90.00

Allocation

This is an experimental heuristic process that causes confidence level results to sum, please see help.

Allocate at: % confidence

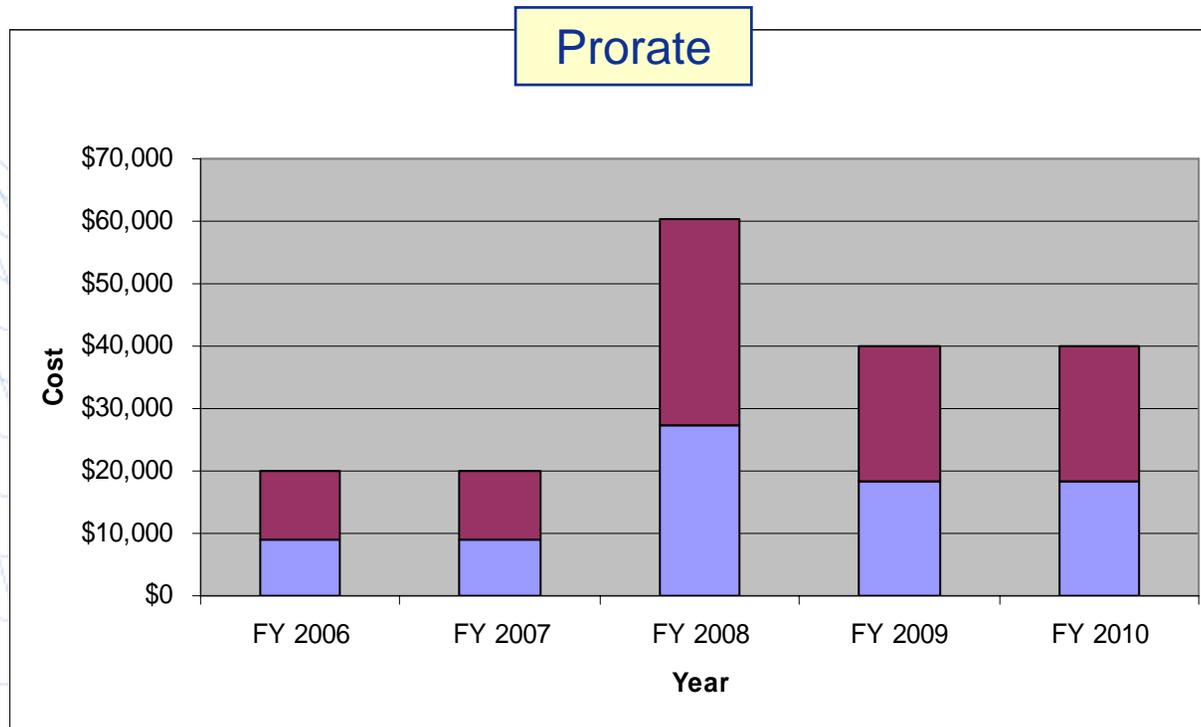
Allocation markers defined in:

RISK Phasing Profile:

RISK PE Percent Adjustment: %

Note: Allocation options are only used when allocation is selected in a report (Phased, Budgetary, or Cost Category).

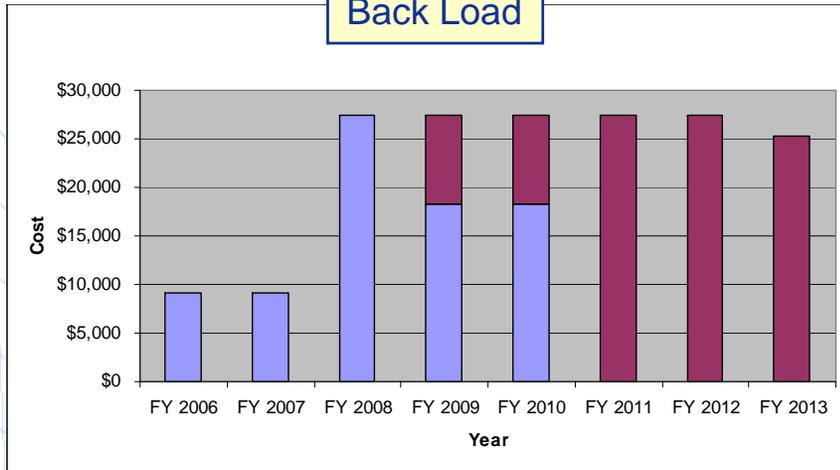
- **Prior to ACEIT 7.2, risk dollars were prorated based on the point estimate BY phasing**



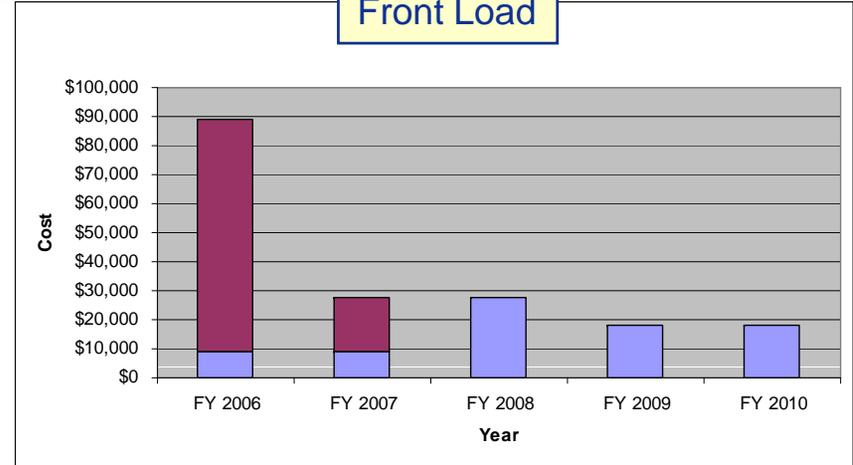
- Original Point Estimate phased results
- Risk dollars

New RI\$K Phasing Profiles

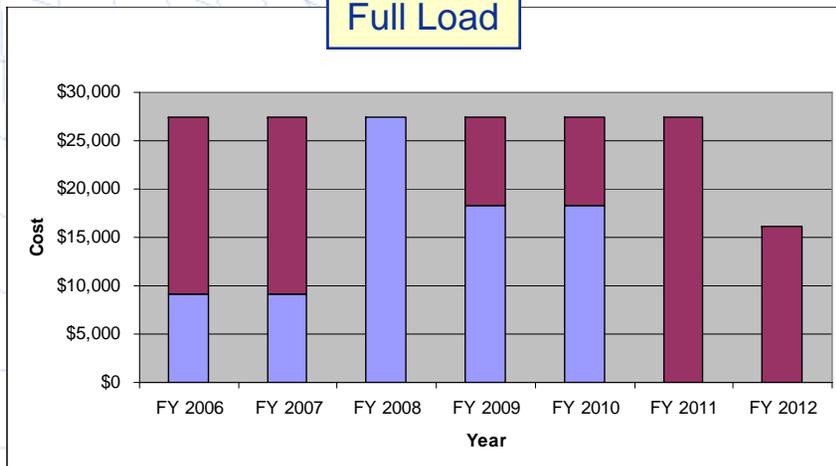
Back Load



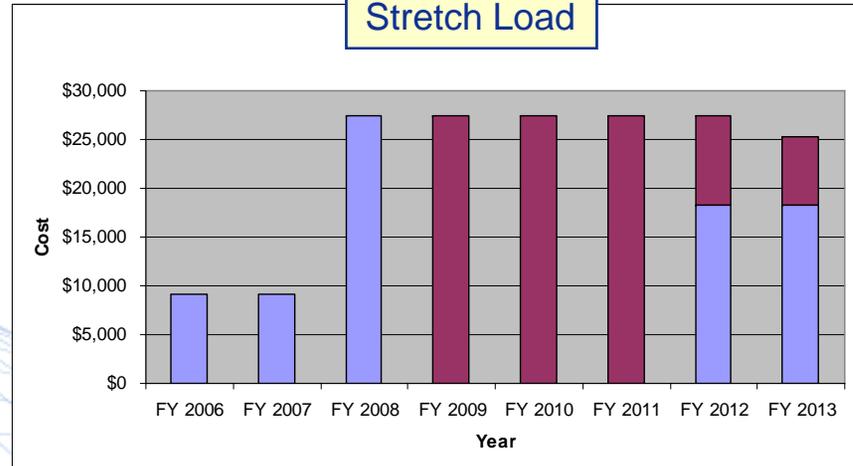
Front Load



Full Load



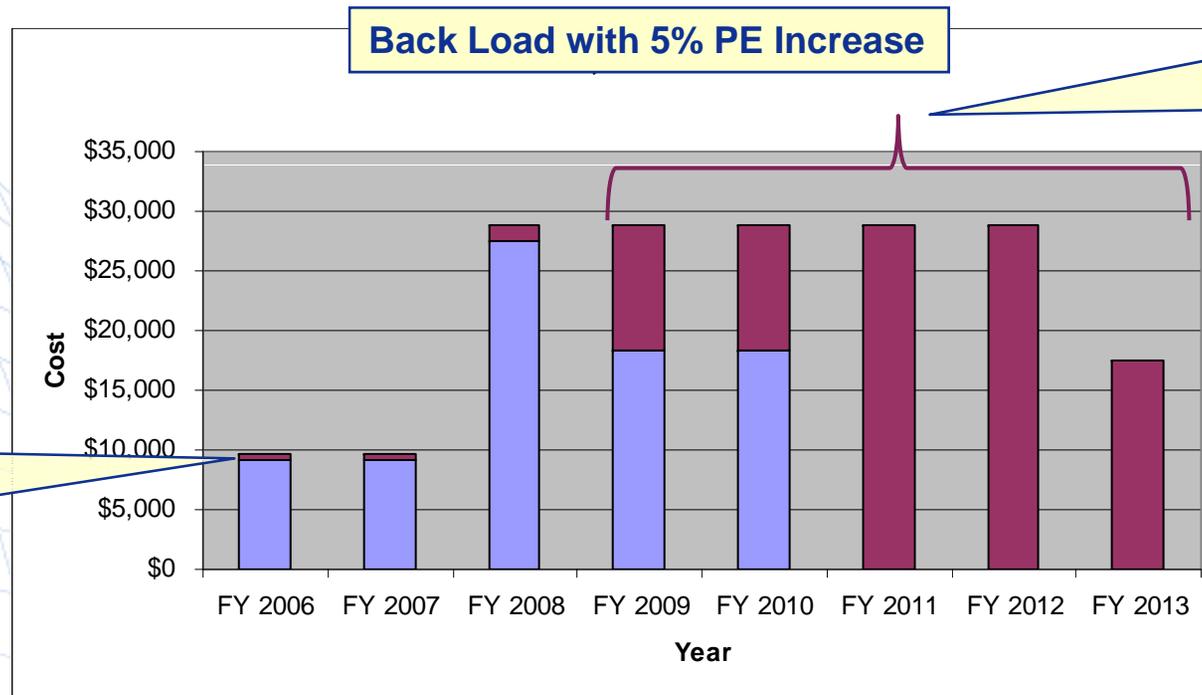
Stretch Load



- Original Point Estimate phased results
- Risk dollars

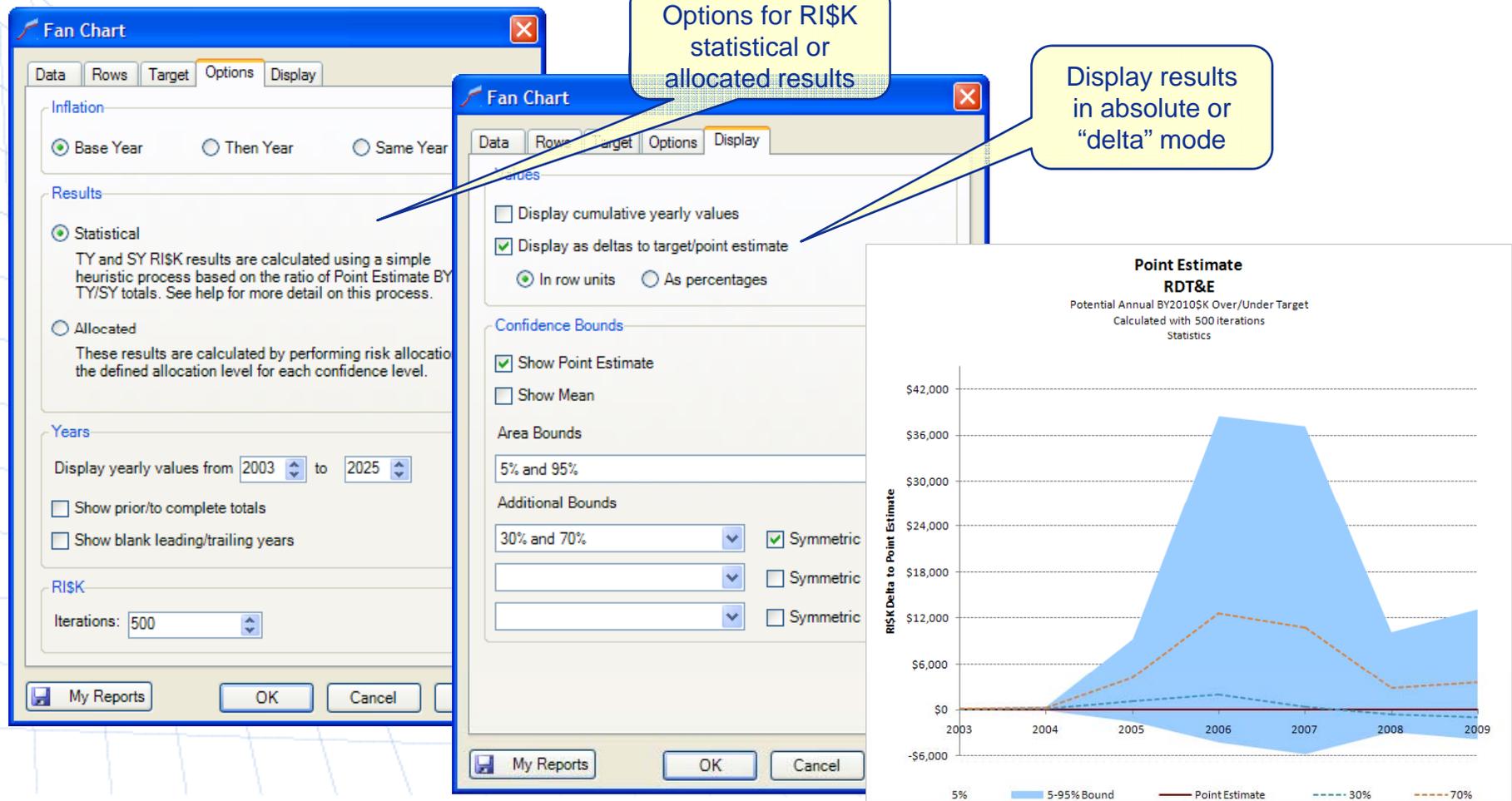
RI\$K PE % Adjustment

- **RI\$K PE Percent Adjustment** spreads RI\$K dollars by increasing/decreasing the point estimate (PE) phased results by the specified percentage. Remaining RI\$K dollars are spread according to the RI\$K phasing profile specified.



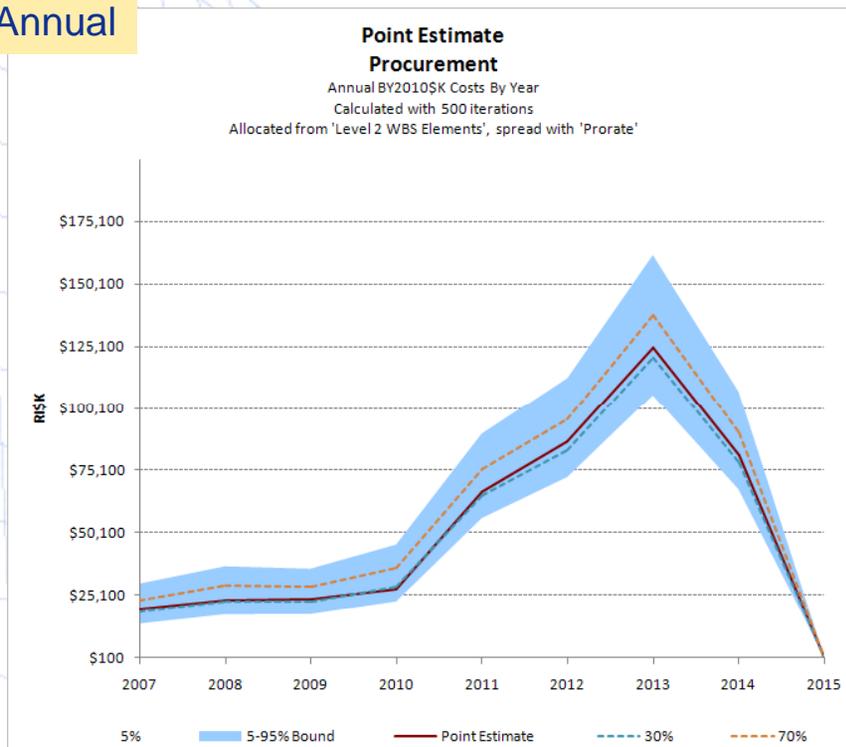
- Original Point Estimate phased results
- Risk dollars

- **New Fan Chart** shows annual or cumulative uncertainty bands
 - In **annual** mode, the chart illustrate the uncertainty associated on a year by year basis
 - In **cumulative** mode, the chart illustrates the cumulative uncertainty by year

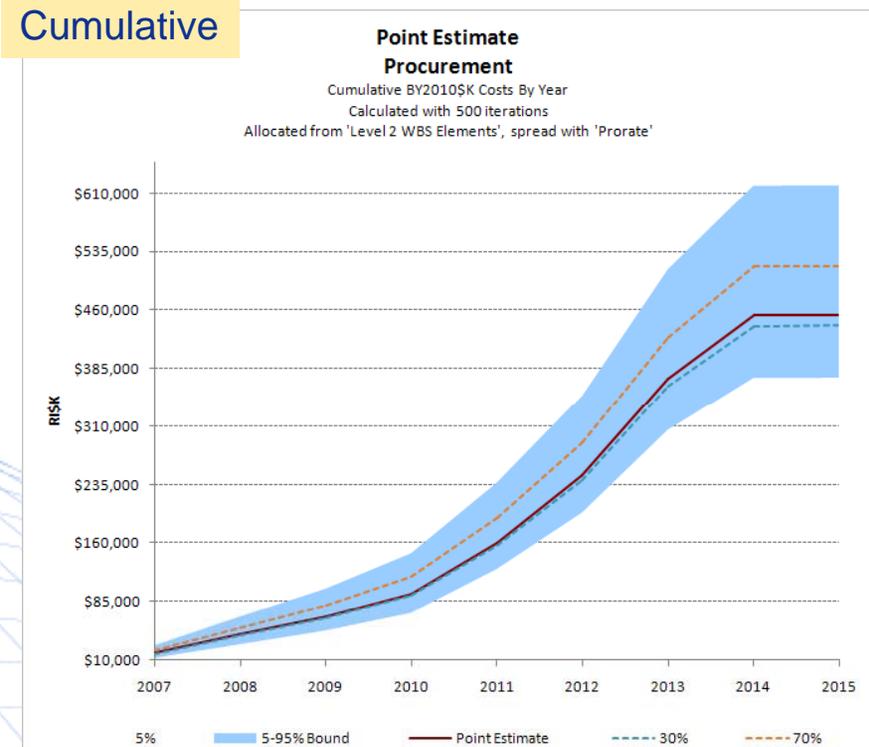


- **New Fan Chart shows annual or cumulative uncertainty bands**
 - In annual mode, the chart illustrate the uncertainty associated on a year by year basis
 - In cumulative mode, the chart illustrates the cumulative uncertainty by year
 - Options for RISK statistical or allocated results in absolute or “delta” mode

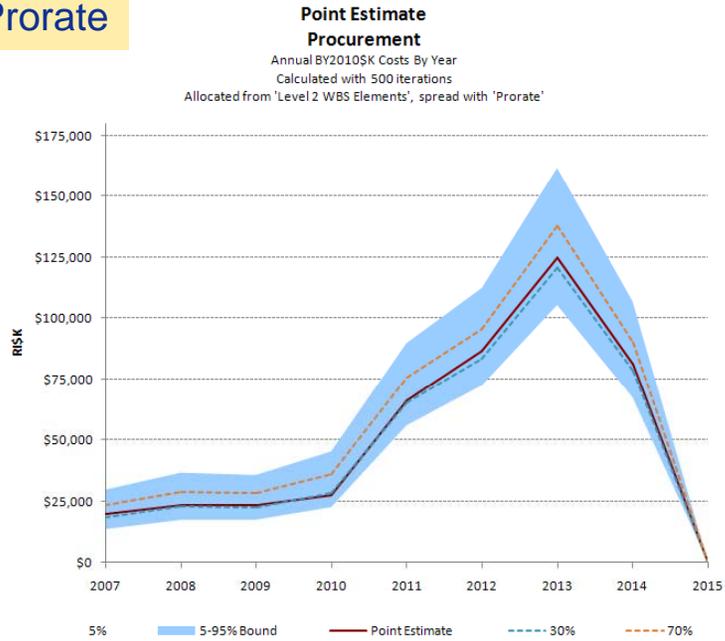
Annual



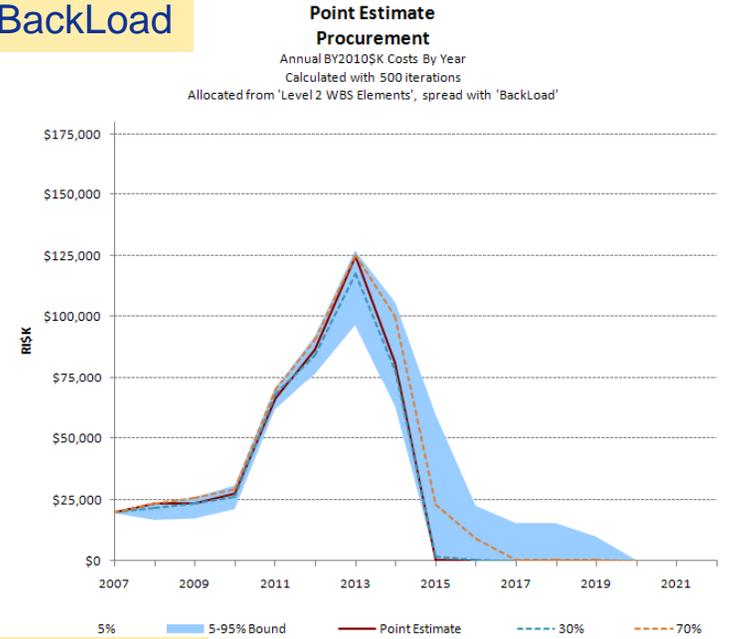
Cumulative



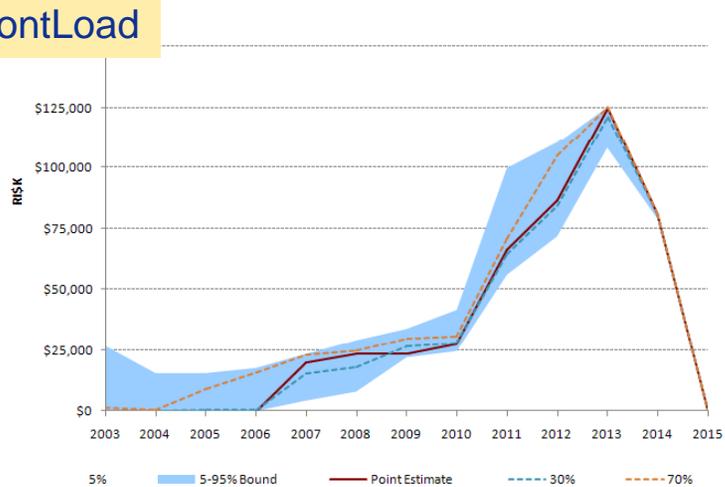
Prorate



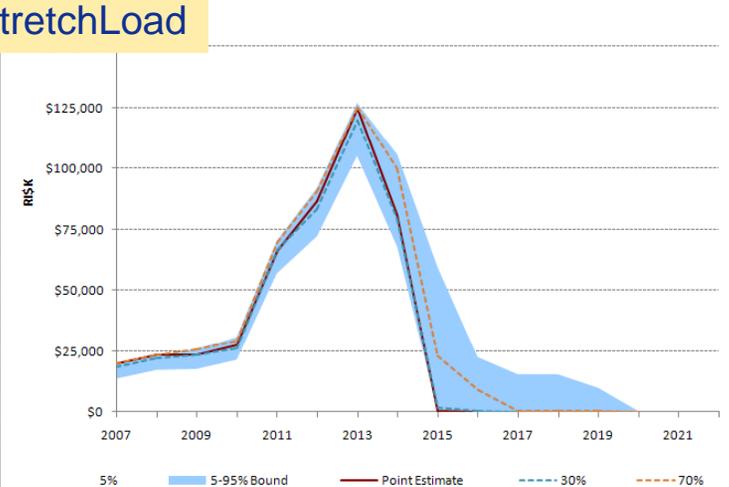
BackLoad



FrontLoad



StretchLoad



ACE Plug-ins



■ ACE to ACE Plug-in

- Added an option for selecting which **what-if case** to import data from
- Import **CES and or WBS Numbers**, if they exist, into the corresponding columns in the current session
- Added an option on the plug-in's Tools>Options screen for specifying the **number of RI\$K CDF points** to store

■ Excel to ACE Plug-in

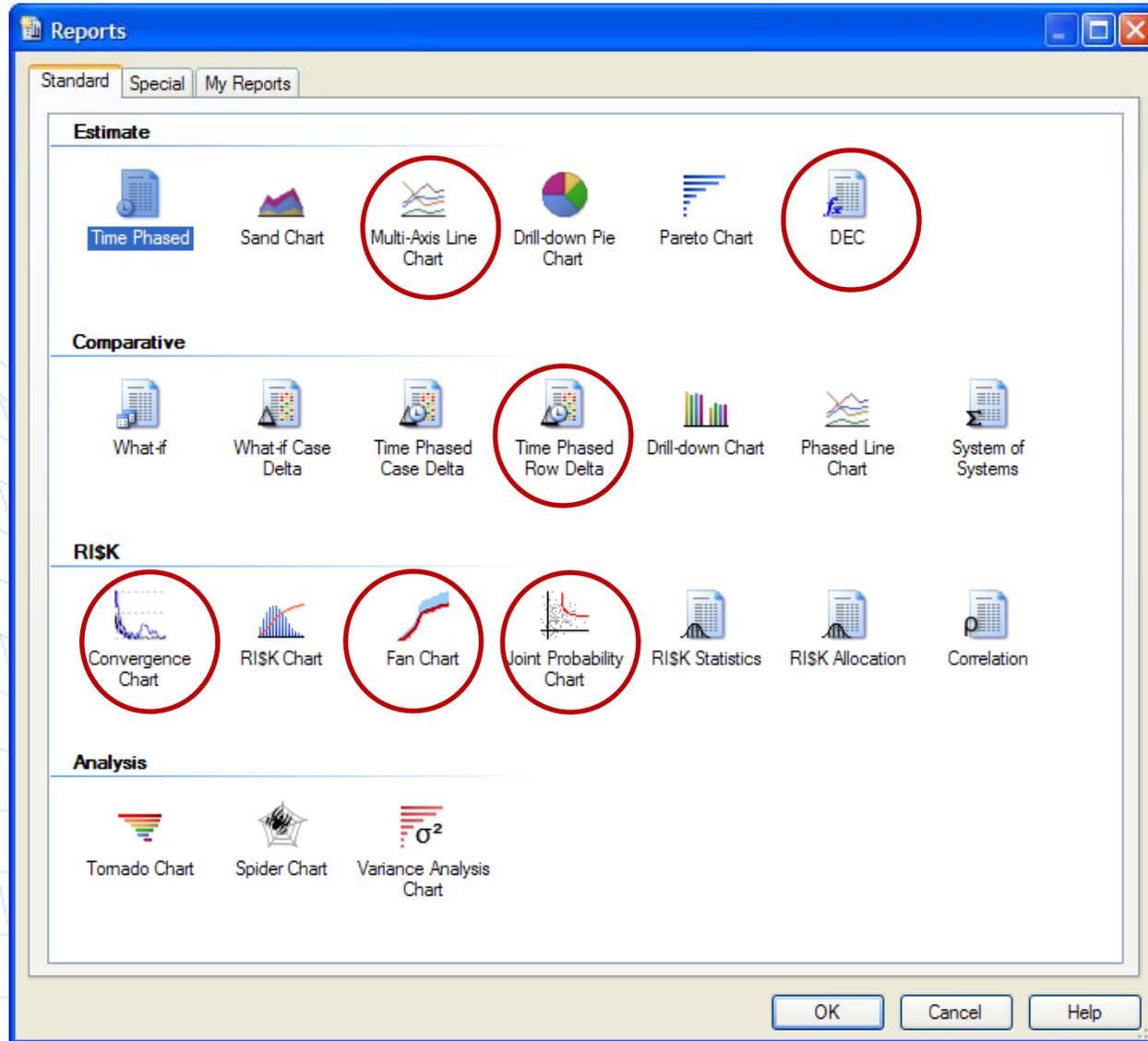
- Added capability to import **Start Date, Finish Date, Learning** (Slope, Prior Qty, Buy Qty, Theory, and Ref Cost Type), and **Adjustments** (Fee, G&A, and Overhead Rates) data into the corresponding columns in ACE
- Excel Plug-in Example and Template files now have the Approp col/row formatted as Text. This was done so that approp codes such as "0105" will retain the leading zero when imported into ACE.

■ SEER to ACE Plug-in

- The SEER Plug-in now works with the most recent version of SEER SEM 7.3

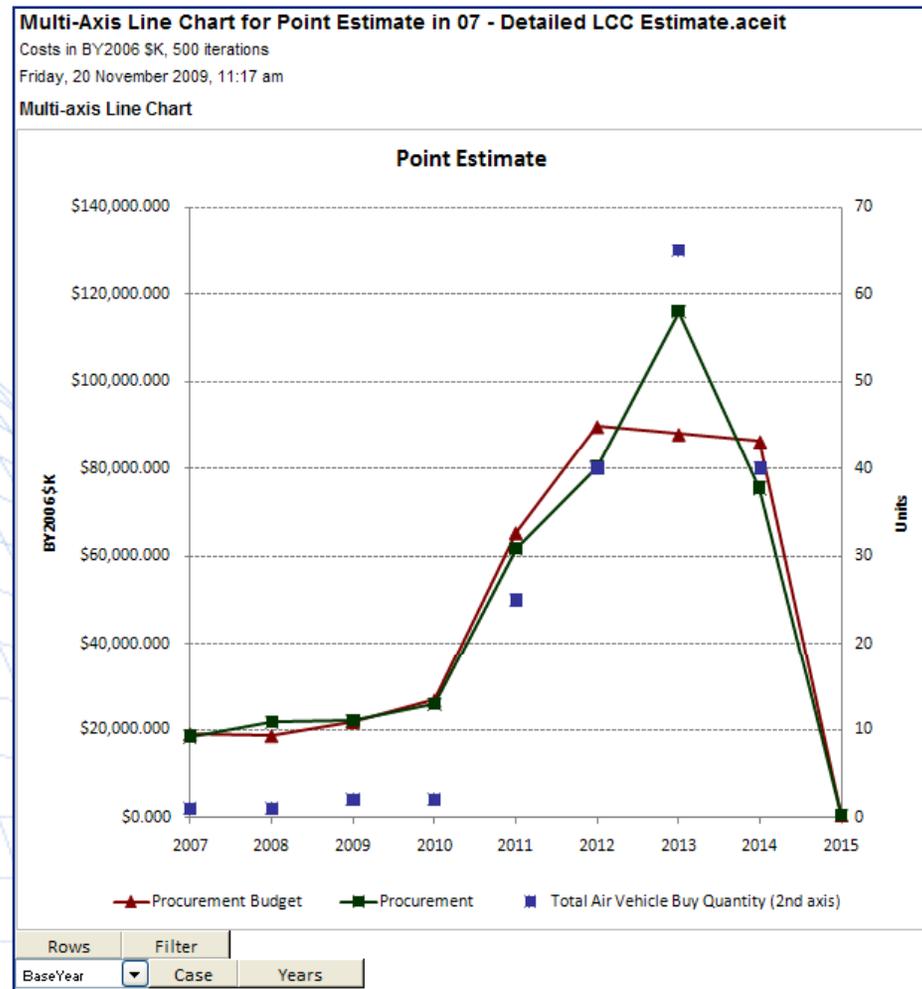
POST New Features





New
in
ACEIT
7.2

New Multi-Axis Line Chart - Plots phased results for multiple rows against two y-axes (e.g., plot cost and quantity)

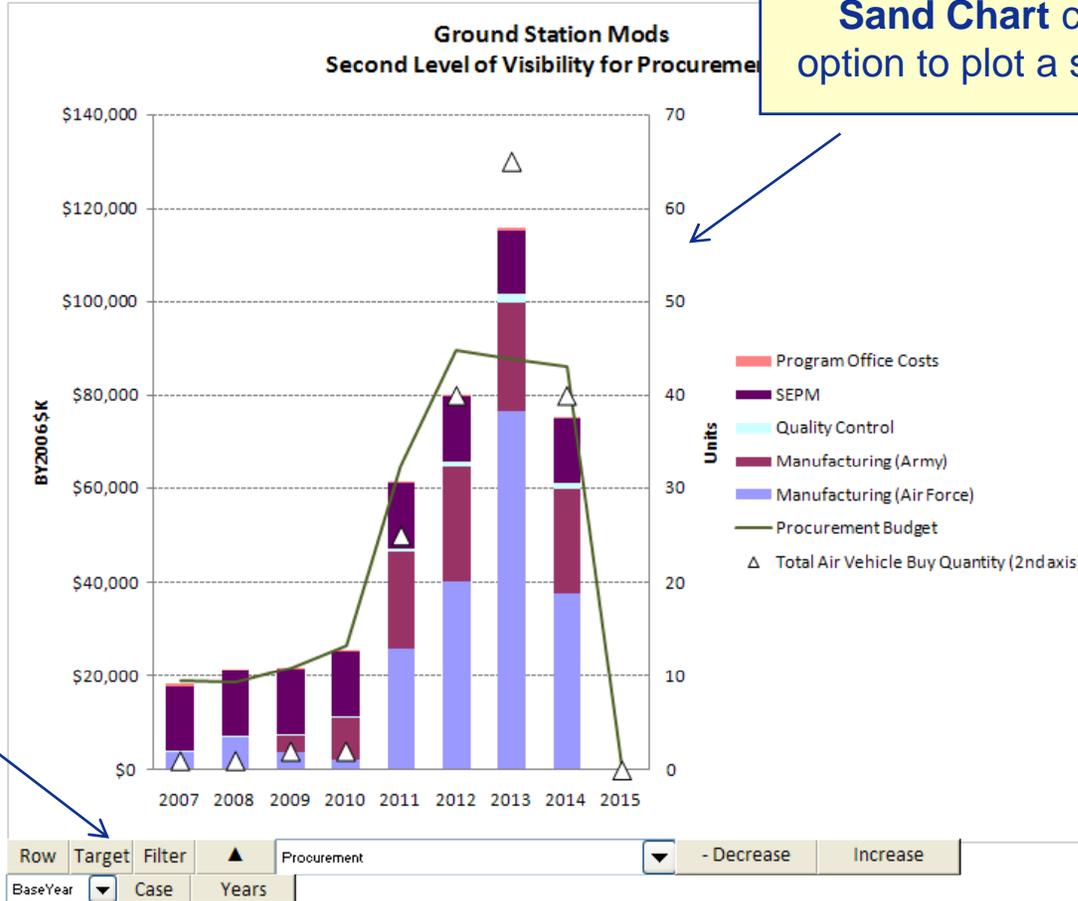


Sand Chart Enhancements

Sand Chart for Ground Station Mods in 07 - Detailed LCC Estimate.aceit

Costs in BY2006 \$K, 500 iterations
Friday, 20 November 2009, 11:41 am

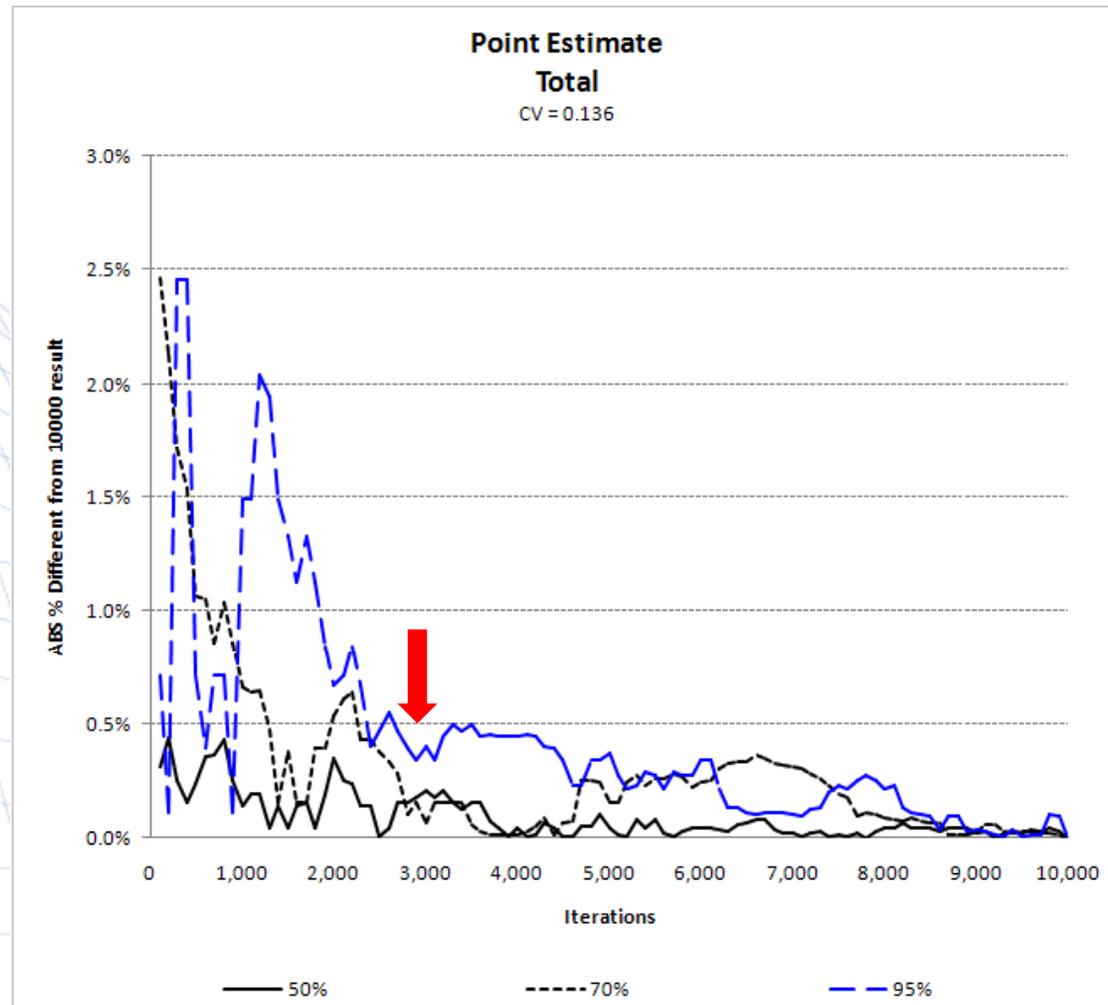
Sand Chart of Row 116: Procurement



Sand Chart contains a new option to plot a secondary y-axis

RI\$K Convergence Chart

- New **RI\$K Convergence Chart** provides guidance on the number of RI\$K iterations to choose for a selected ACE session



Joint Probability Chart

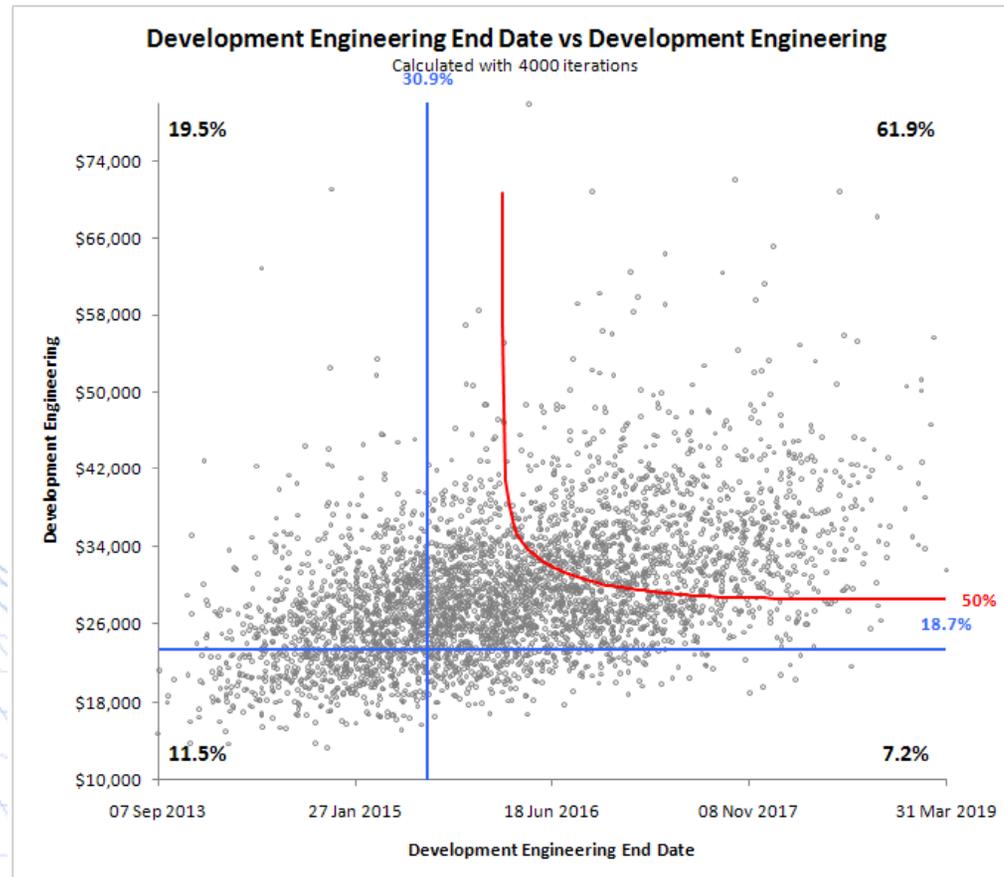
- New **Joint Probability Chart** illustrates the joint probability between two rows. The user can move “crosshairs” to divide the points into quadrants and display the joint probability contained therein.
- Statistical and iteration data is stored on the worksheet below the chart

Plot iterations from table below

	Development Engineering	Engineering End Date
Point Est	\$23,429	01 Aug 2015
Mean	\$29,487	09 Mar 2016
StdDev	\$7,079	17 Jan 1901
CV	0.240	0.009
1	\$23,052	30 Aug 2016
2	\$30,288	17 May 2015
3	\$35,259	04 Jul 2018
4	\$19,329	01 Mar 2016

Use left/right arrows to move the vertical bar.

Use up/down arrows to move the horizontal bar.



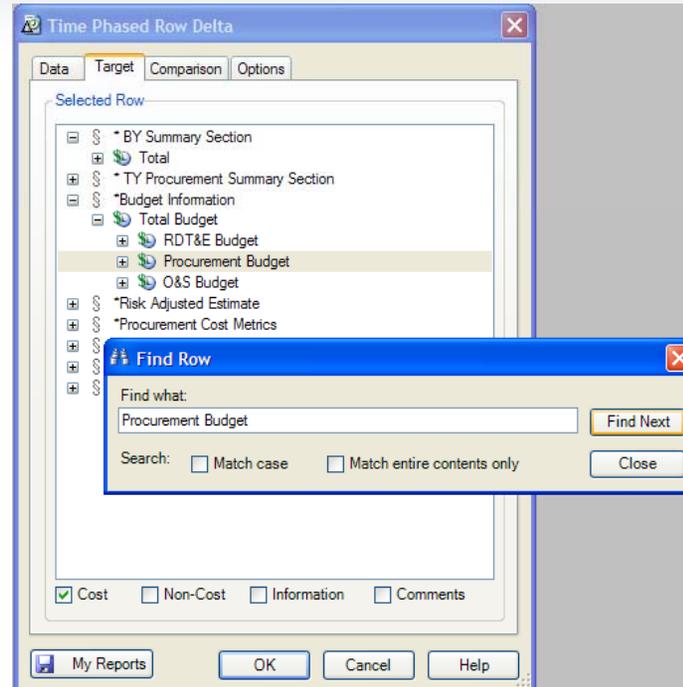
Displayed Rows Options

Move Crosshairs

◀ 5.0%	◀ 1.0%	▶ 1.0%	▶ 5.0%
▲ 5.0%	▲ 1.0%	▼ 1.0%	▼ 5.0%

Look for "A-SPOT" on the ACEIT CD for a more dynamic utility to perform JCL visualization.

Added a **Find Row** option to the right-click menu on all report Row selection tabs

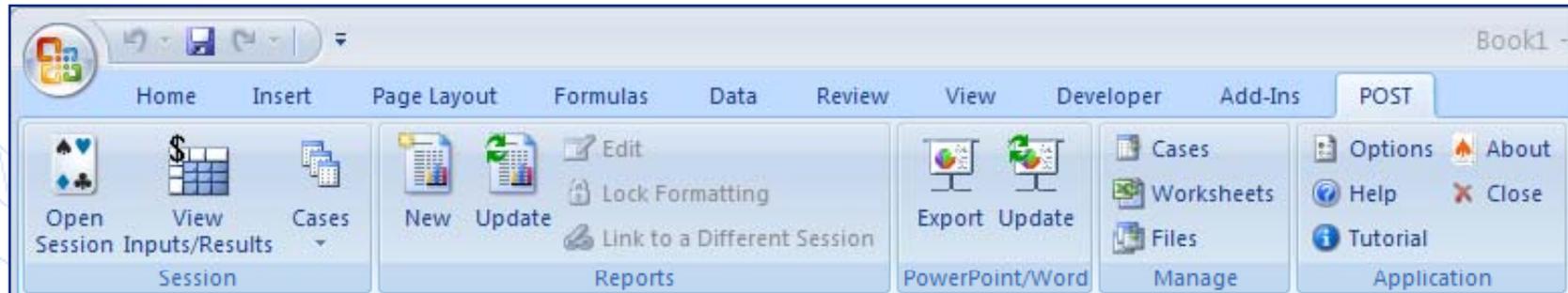


- **New Time Phased Row Delta** report plots yearly delta between a target row and selected comparison row(s)

Delta Comparison

Costs in BY2010 \$K	2007	2008	2009	2010	2011	2012	2013
Procurement Budget	\$20,408.818	\$20,089.189	\$23,741.220	\$29,257.699	\$71,913.358	\$98,883.408	\$97,134.978
Procurement	\$19,753.932	\$23,330.756	\$23,602.332	\$27,666.332	\$66,382.037	\$86,408.243	\$124,900.315
Delta (Δ)	-\$654.886	\$3,241.567	-\$138.888	-\$1,591.367	-\$5,531.320	-\$12,475.165	\$27,765.337
Percent Δ	(3.21%)	16.14%	(0.59%)	(5.44%)	(7.69%)	(12.62%)	28.58%
Threshold	Under Target	High	Under Target	Under Target	Under Target	Under Target	High

- Added an **Excel 2007 style ribbon** for POST



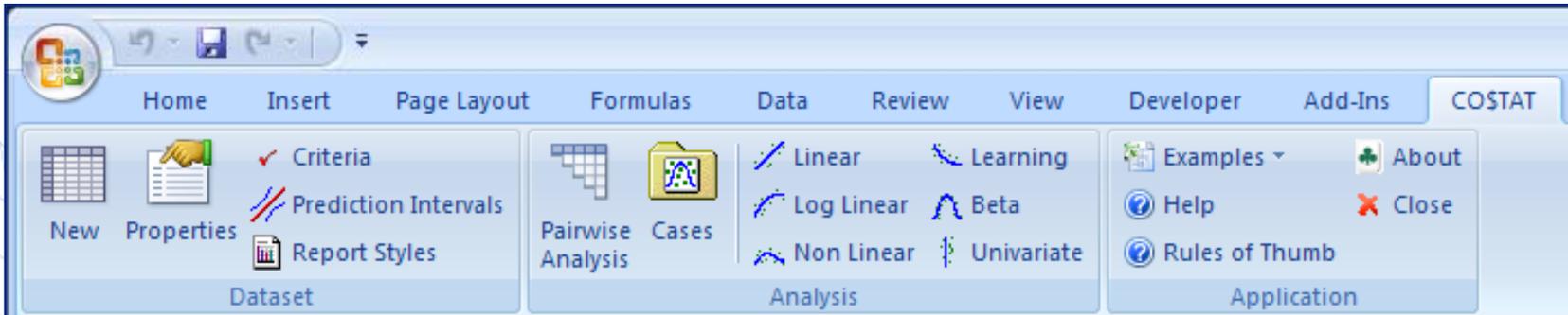
- **Improved POST Cache performance** to reduce the number of times POST has to recalculate
- **Right-click pop-up dialog added to Cost Interpretation** column of the Inputs/Results Viewer (IRV) for guidance on specifying the base year and units for cost overrides
- **DEC Results** can be viewed in the IRV. Use the Settings toolbar button to customize the view
- Added the option **Link to another session** to the Reports menu
- Added an **Autosave Cache File** option under POST>Options

CO\$TAT New Features



CO\$TAT 7.2 Enhancements

- Added an Excel 2007 style **ribbon** for CO\$TAT



- Modified CO\$TAT to support the new ACE **RISK Student's t-distribution and Log-t distribution**. When the dataset contains less than 40 data points, Student's-t is the default distribution exported to ACE, rather than Normal. The same applies for Log-t and LogNormal.
- Added **Precision** as a Dataset Property and as an Analysis Case option for reporting
- Added the **General Rules of Thumb** for Regression Statistics help topic to the main CO\$TAT menu
- Added an **Example Files** menu option to the main CO\$TAT menu

- **Export to ACE/Librarian** selections are now remembered
- Increased the **maximum variable ID length** to 100 characters (previously 50)
- Added a **histogram beta curve graph** to the Beta report in addition to the S-curve
- Rather than displaying the message “The selected sheet does not appear to be a dataset” when an Analyze option is selected, the worksheet containing the **dataset automatically becomes the active worksheet**
- CO\$TAT now **reports the actual weights** used in the computation in the percentage error table for MUPE equations. (Prior to 7.2, weights were multiplied by the square of the largest predicted value to make them easier to read.)

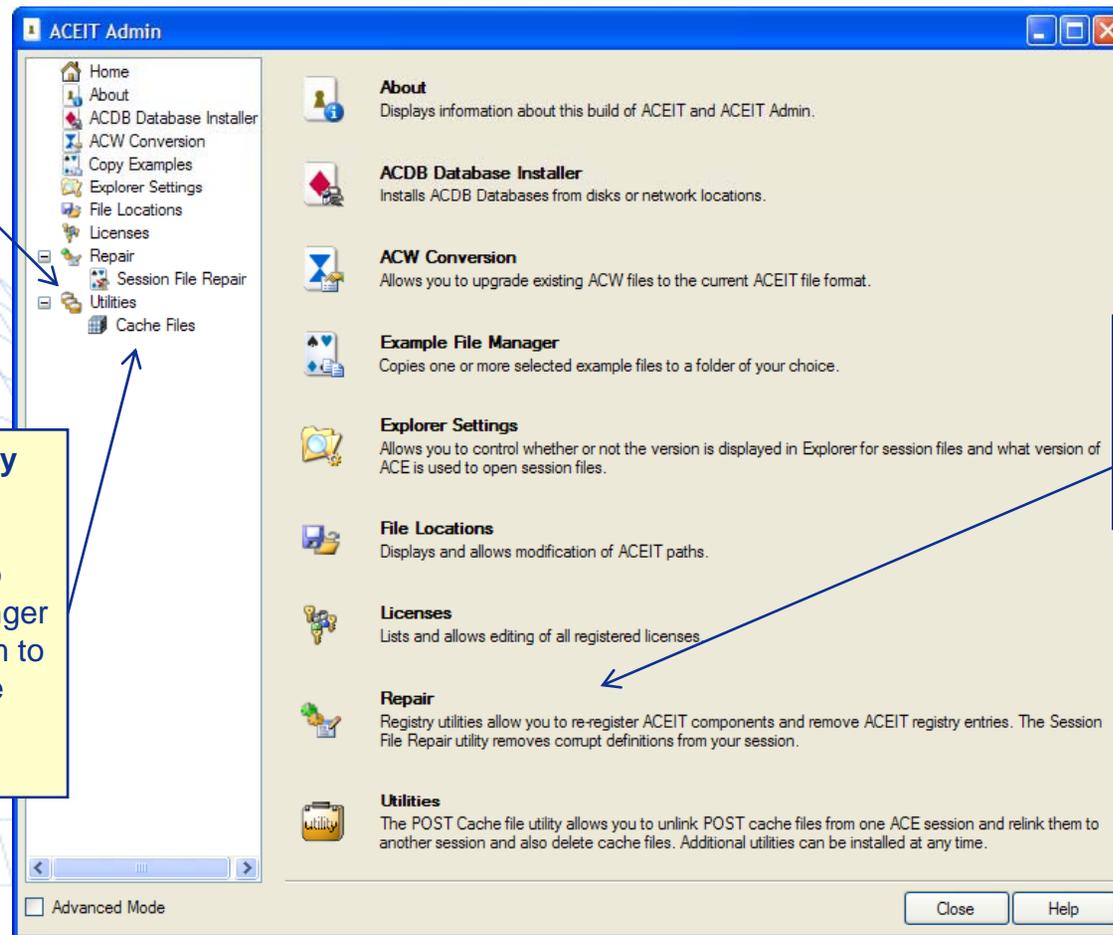
Other ACEIT 7.2 Enhancements

- **ACEIT Librarian** – Added a Degrees of Freedom column to support the new Student's t and Log-t distributions
- **ACEIT Admin** – Updated interface

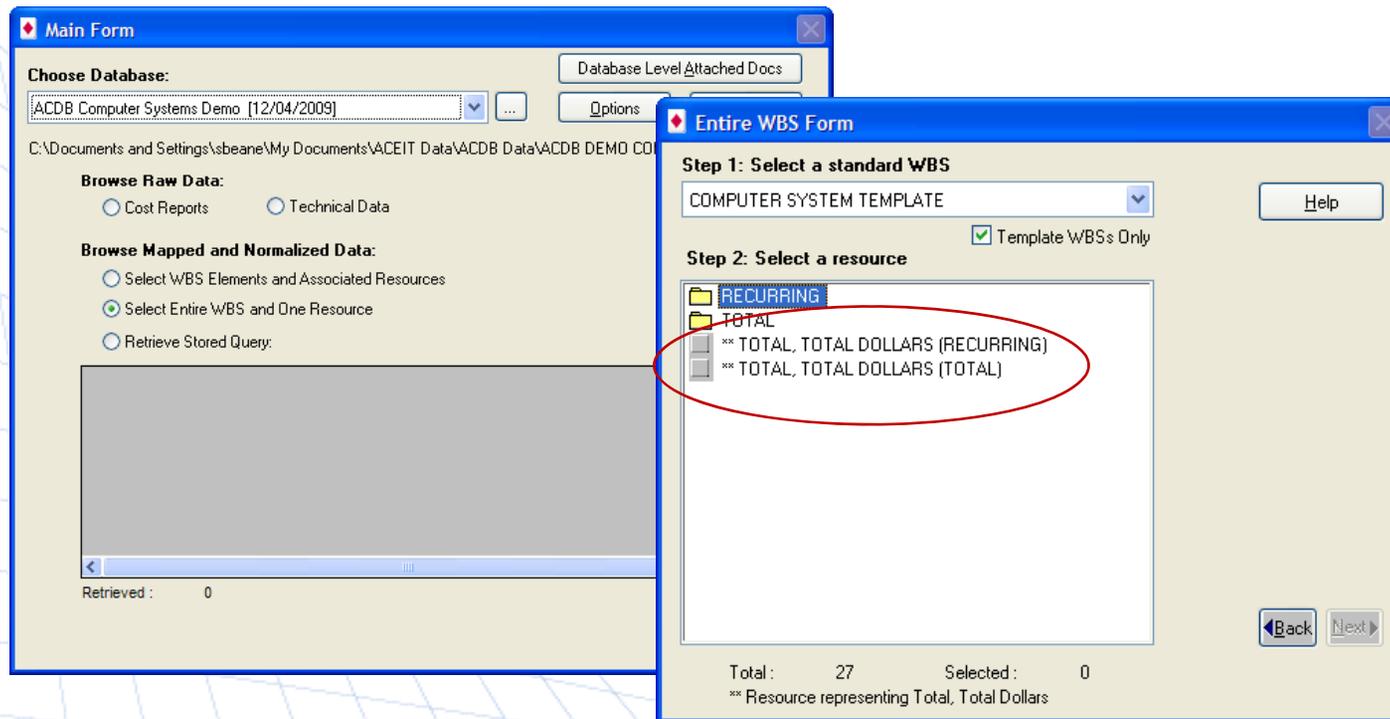
New Utilities option where custom debugging tools can be added when necessary.

POST Cache Files Utility allows the user to view "orphaned" POST cache files (POST files linked to ACE sessions that no longer exist) and either link them to an ACE session or delete them.

Session File Repair tool, which removes corrupt definitions from an ACE session, now an Admin option.



- In the Resource selection form, **“default” resources appear at the root of the selection tree** (in addition to their usual location under the Non-Recurring, Recurring and Total folders)



- Made **default size larger** for windows and drop-down boxes
- Export by Entire WBS, One Resource outputs **additional summary rows**, one per top-level CES item, for the top level WBS item



Calc engine changes that may affect results

ACE

- Previously, the default behavior for the **DateAdd() function** was to truncate the years or months being added. DateAdd() now has an optional argument to control how partial years/months are treated. The **default behavior has been changed to recognize partial years and months.**
- The functions **FYCMin() and FYCMinYr()** were modified to **exclude years with a 0 result** when calculating minimums. Now FYCMin() will return the smallest non-zero value for a range of calculated values. FYCMinYr() will return the year where the smallest non-zero value occurs.

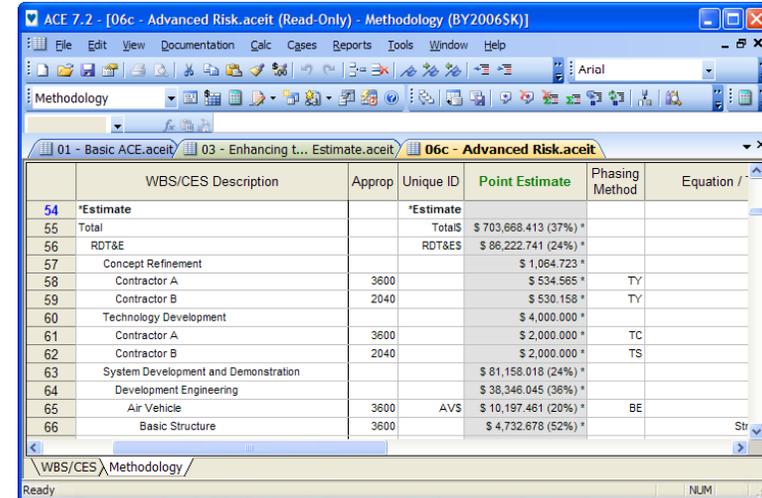
CO\$TAT

- **CO\$TAT was exporting the confidence interval associated with the mean rather than the prediction interval about a specific point when performing Univariate analysis.** Additionally, CO\$TAT was exporting the bound values rather than bounds as a percent of the mean (i.e., the point estimate) and placing these values in the low/high percent columns when performing Univariate analysis. CO\$TAT now exports the correct Univariate prediction interval in terms of percent of the point estimate and places the data in the correct columns.

★ ACEIT 7.2 contains hundreds of usability and stability enhancements

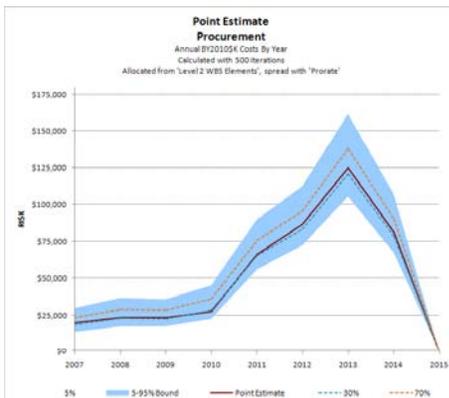
■ Key ACE enhancements

- Window and Workscreen tabs
- New functions
- Inputs/Results Viewer improvements
- Four new RISK phasing profiles

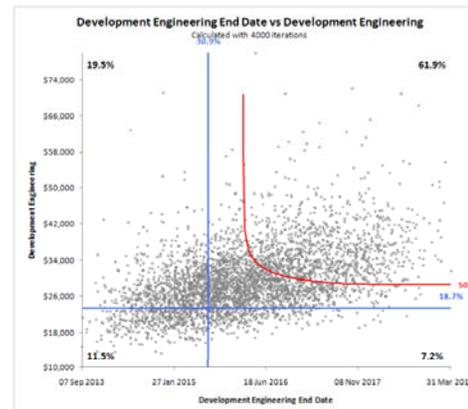


	WBS/CES Description	Approp	Unique ID	Point Estimate	Phasing Method	Equation /
54	*Estimate		*Estimate			
55	Total		Total\$	\$ 703,668,413 (37%)*		
56	RDT&E		RDT&E\$	\$ 86,222,741 (24%)*		
57	Concept Refinement			\$ 1,064,723*		
58	Contractor A	3600		\$ 534,565*	TY	
59	Contractor B	2040		\$ 530,158*	TY	
60	Technology Development			\$ 4,000,000*		
61	Contractor A	3600		\$ 2,000,000*	TC	
62	Contractor B	2040		\$ 2,000,000*	TS	
63	System Development and Demonstration			\$ 81,158,018 (24%)*		
64	Development Engineering			\$ 38,346,045 (36%)*		
65	Air Vehicle	3600	AVS	\$ 10,197,461 (20%)*	BE	
66	Basic Structure	3600		\$ 4,732,678 (52%)*		

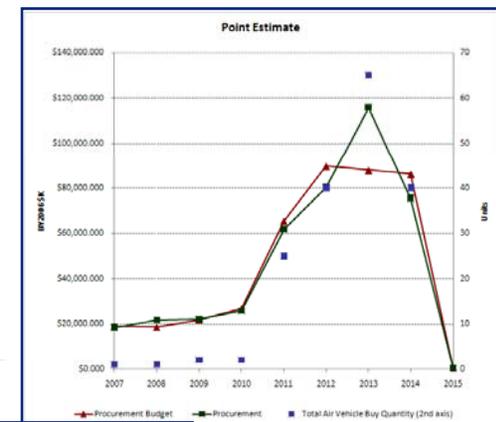
■ New POST reports



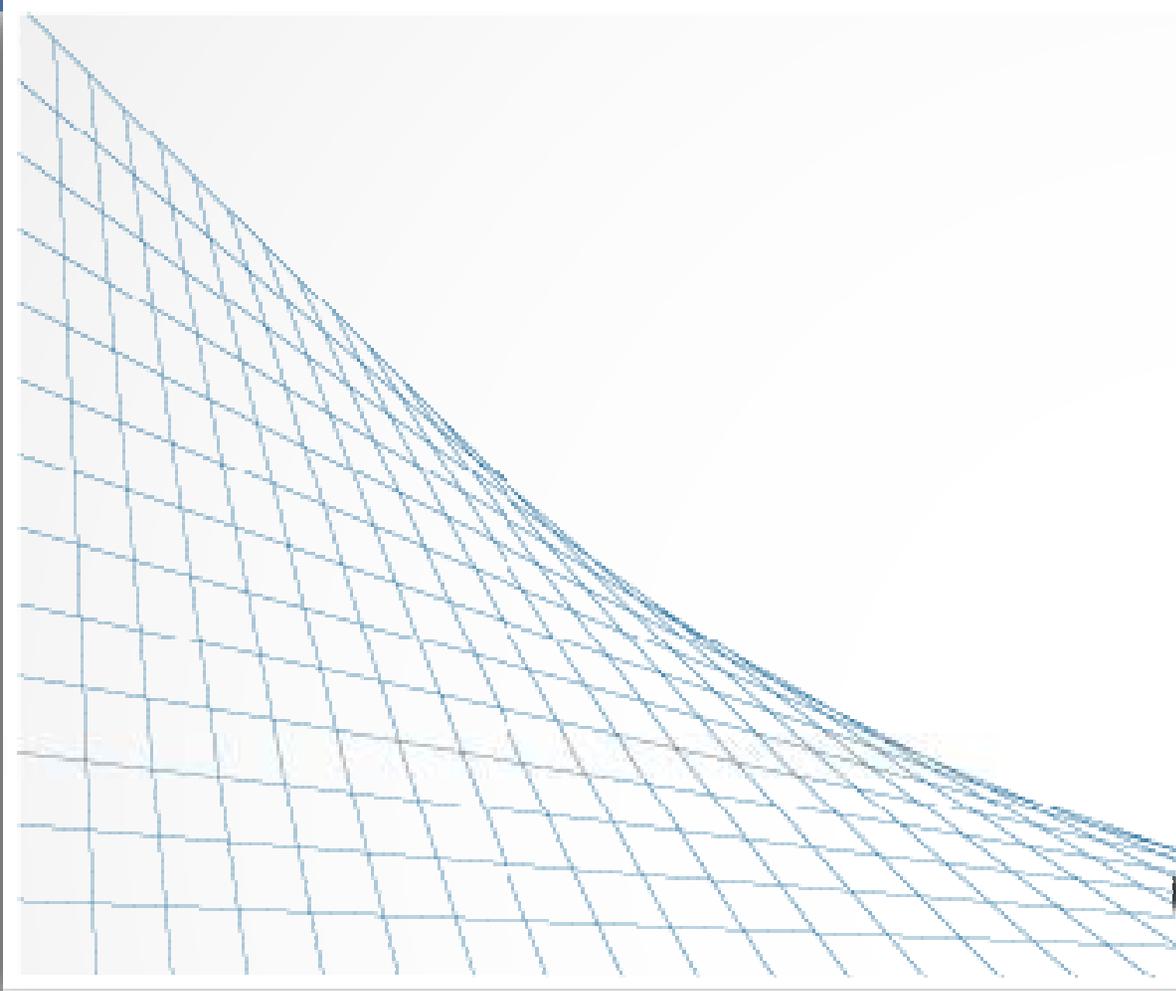
Fan Chart



Joint Probability Chart



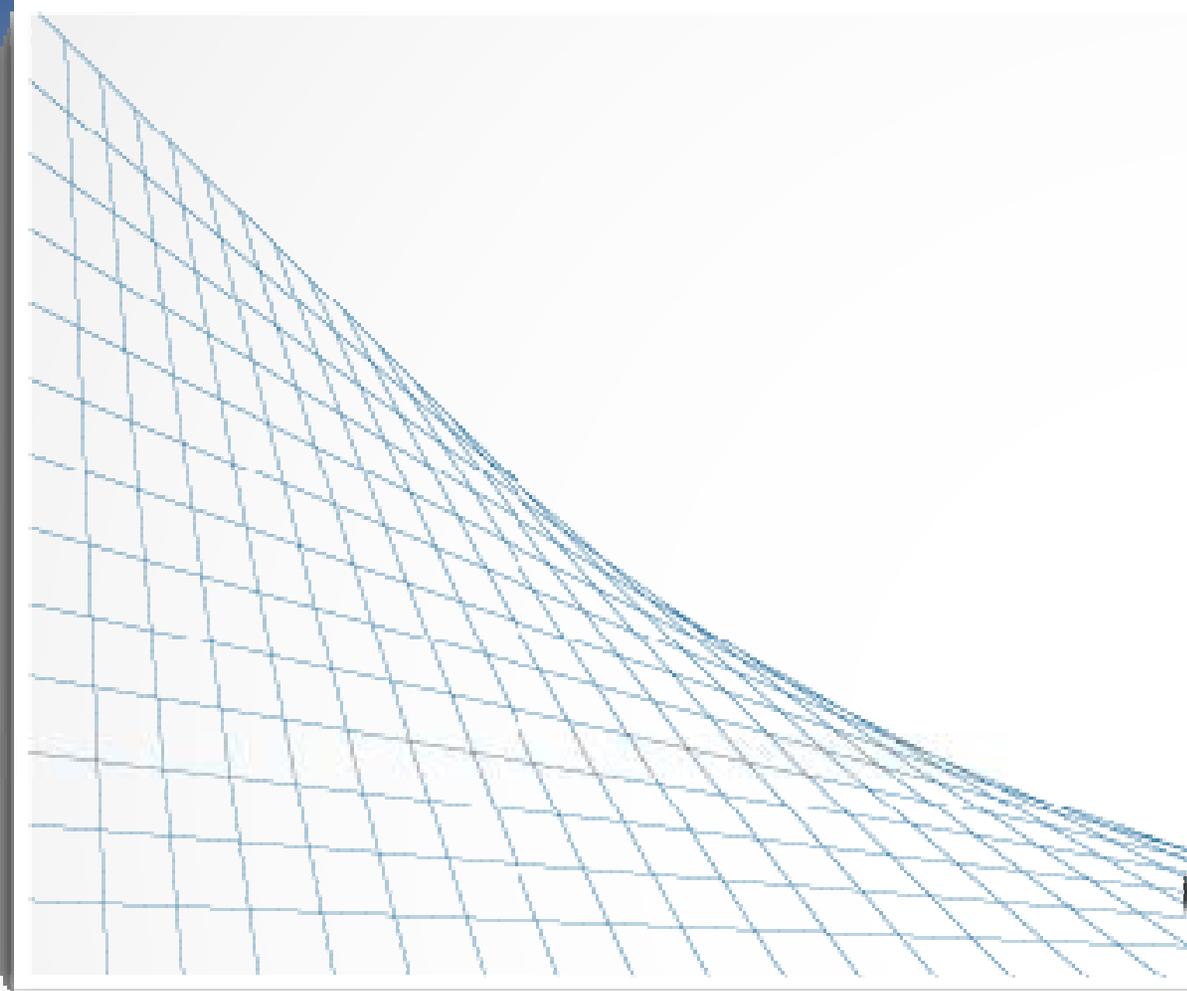
Multi-axis Line Chart



The End



ACEIT



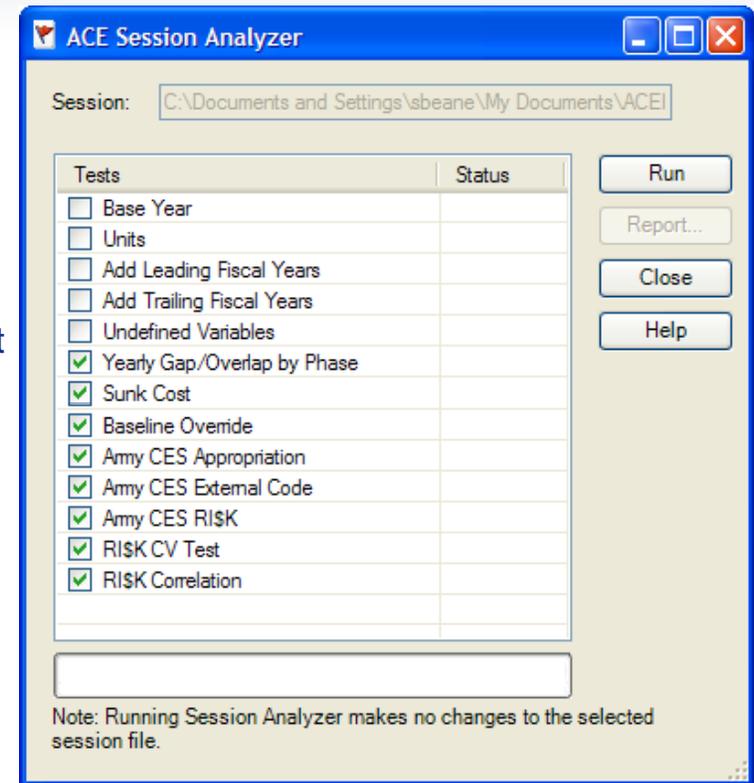
Backup



New Session Analyzer Tests

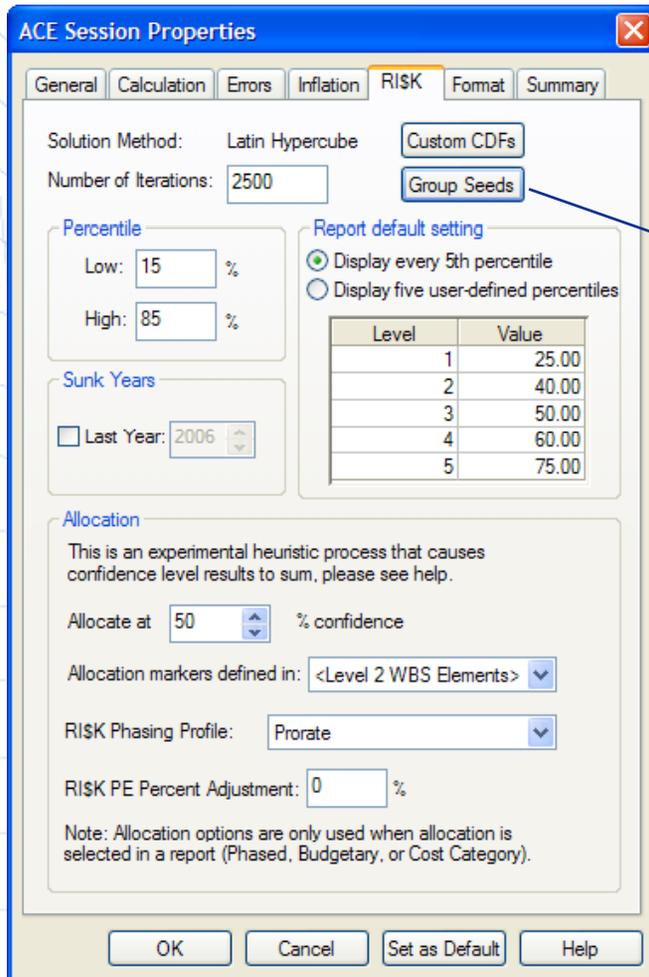
■ Additional Session Analyzer tests:

- Yearly gap/overlap by phase
 - RDT&E extends > 2 years into Production
 - Production starts > 2 years before RDT&E ends
 - O&M starts > 2 years before Production starts
 - Zero cost years between first and last years with cost
- Sunk costs beyond today's GFY, plus one year.
- Overrides in the baseline case.
- (Army) Crosschecks the CES numbers (if they exist) with all appropriations to check if they are consistent with the CES phase.
- (Army) Crosscheck standard Army External Codes with CES numbers
- (Army) Basic risk checks top level CES items, e.g., 1.0, 2.0, 3.0, and flags rows where the point estimate confidence level is <10% or >50%.
- RISK Coefficient of Variation test flags WBS level 1 and 2 rows with $CV < .1$ or $CV > .5$
- RISK Correlation checks for correlation within the estimate and input variables. This is a session, not a row level test.



ACE 7.2 RISK Enhancements

Risk Group Seeds dialog added for viewing/editing random seeds associated with correlation Groups. If no dominant element is defined for a Group, ACE generates and now maintains a random seed for the Group which preserves the stability of calculated results.



ACE Session Properties

General Calculation Errors Inflation **RISK** Format Summary

Solution Method: Latin Hypercube

Number of Iterations: 2500

Percentile
Low: 15 %
High: 85 %

Sunk Years
 Last Year: 2006

Report default setting
 Display every 5th percentile
 Display five user-defined percentiles

Level	Value
1	25.00
2	40.00
3	50.00
4	60.00
5	75.00

Allocation
This is an experimental heuristic process that causes confidence level results to sum, please see help.

Allocate at: 50 % confidence

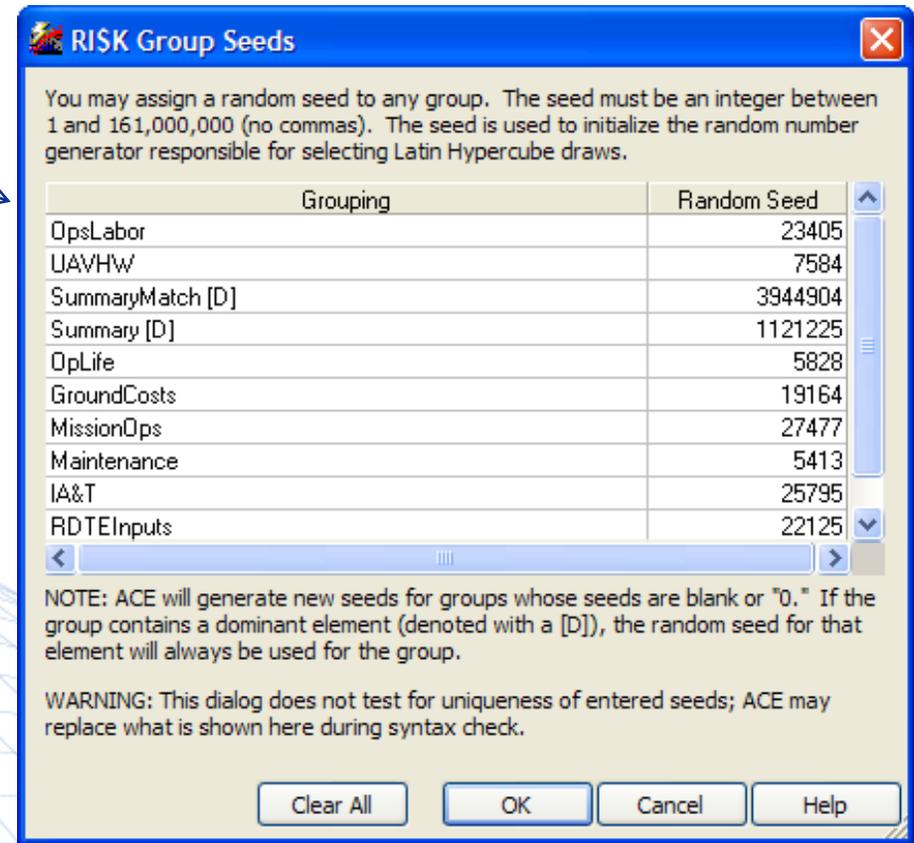
Allocation markers defined in: <Level 2 WBS Elements>

RISK Phasing Profile: Prorate

RISK PE Percent Adjustment: 0 %

Note: Allocation options are only used when allocation is selected in a report (Phased, Budgetary, or Cost Category).

OK Cancel Set as Default Help



RISK Group Seeds

You may assign a random seed to any group. The seed must be an integer between 1 and 161,000,000 (no commas). The seed is used to initialize the random number generator responsible for selecting Latin Hypercube draws.

Grouping	Random Seed
OpsLabor	23405
UAVHW	7584
SummaryMatch [D]	3944904
Summary [D]	1121225
OpLife	5828
GroundCosts	19164
MissionOps	27477
Maintenance	5413
IA&T	25795
RDTEInputs	22125

NOTE: ACE will generate new seeds for groups whose seeds are blank or "0." If the group contains a dominant element (denoted with a [D]), the random seed for that element will always be used for the group.

WARNING: This dialog does not test for uniqueness of entered seeds; ACE may replace what is shown here during syntax check.

Clear All OK Cancel Help

06c - Advanced Risk.aceit session

System by Site Wizard

System By Site Wizard - Site Procurement Schedule

In the table below list the sites to which the items will be procured/deployed. In each year identify the total number of completed systems required.

	Sites	FY 2010	FY 2011	FY 2012	FY 2013
1	Site 1	5	10	10	
2	Site 2	2	2	2	
3	Site 3	5	1	5	
4					
5					
6					
7					

of Systems
needed each year
for each Site

System By Site Wizard - Component Unit Prices

In the table below, list all of the components that will be used at one or more sites. Also specify unit price or learning curve information. For fixed cost items, specify the cost per unit in the Price column, together with associated Base Year and Price Units. For learning curves, specify the unit reference cost in the Price column, together with the associated Base Year, Units, Slope, Theory, Reference Cost Type, Prior Quantity, and the optional Rate Slope.

Unit Cost Appropriation: 3020 - MIPF

	Components	Price	Price Base Year	Price Units
1	component 1	500	2008	\$
2	component 2	50	2007	\$
3	component 3	200	2009	\$
4	component 4	700	2009	\$
5				

Component unit
prices

System By Site Wizard - Configuration Matrix

In the table below you will specify a configuration table. This table will identify the quantity of each component required at each site to comprise one (1) system. This configuration table will be multiplied by the annual system quantities per site, specified in "Site Buy Schedules" step of this wizard, to develop the total quantity needed per year for each component.

		Site 1	Site 2	Site 3
1	component 1	10	5	2
2	component 2	20	10	2
3	component 3	20	10	2
4	component 4	20	10	2

of Components
for each Site



Automated Cost Estimating Integrated Tools

System by Site Wizard (cont.)

	WBS/CES Description	Comment (*) Comment	IVAL (!)	Unique ID	Point Estimate	Phasing Method	Equation / Throughput
14	*My Program Estimate			*Estimate			
15	ABC Site Number for Subsystem Cost	Site number for SSCost function. Each site is a what-if case.		ABC_SITEID	1. *	C	1
16	ABC Subsystem Cost	Following rows calculate yearly cost for each component for the site specified by ABC_SITEID.		ABC_SSCOST	\$ 723.431 *		
17	component 1		1		\$ 152.250 *	F	SiteSSCost(4, @ABC_QTY, @ABC_CONF, @ABC_SSQ, @ABC_LTC, ABC_SITEID, IVAL)
18	component 2		2		\$ 31.181 *	F	SiteSSCost(4, @ABC_QTY, @ABC_CONF, @ABC_SSQ, @ABC_LTC, ABC_SITEID, IVAL)
19	component 3		3		\$ 120.000 *	F	SiteSSCost(4, @ABC_QTY, @ABC_CONF, @ABC_SSQ, @ABC_LTC, ABC_SITEID, IVAL)
20	component 4		4		\$ 420.000 *	F	SiteSSCost(4, @ABC_QTY, @ABC_CONF, @ABC_SSQ, @ABC_LTC, ABC_SITEID, IVAL)

♥ SBS Wizard.ace...ogy (BY2009\$K) 📊 SBS Wizard.ac...r (BY2009\$K)

Point Estimate	WBS/CES Description	Total	FY 2009	FY 2010	FY 2011	FY 2012
<input type="checkbox"/> Site 2 Component Cost	15 ABC Site Number for Subsystem Cost	1.				
<input type="checkbox"/> Site 3 Component Cost	16 ABC Subsystem Cost	\$ 723.431	\$ 120.572	\$ 120.572	\$ 241.144	\$ 241.144
	17 component 1	\$ 152.250	\$ 25.375	\$ 25.375	\$ 50.750	\$ 50.750

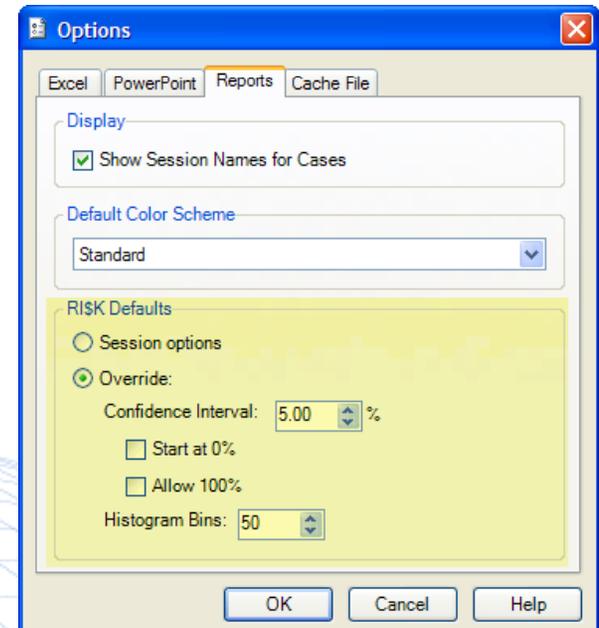
♥ SBS Wizard.ace...ogy (BY2009\$K) 📊 SBS Wizard.ac...r (BY2009\$K)

Point Estimate	WBS/CES Description	Total	FY 2009	FY 2010	FY 2011	FY 2012
<input type="checkbox"/> Site 2 Component Cost	15 ABC Site Number for Subsystem Cost	2.				
<input type="checkbox"/> Site 3 Component Cost	16 ABC Subsystem Cost	\$ 96.457	\$ 24.114	\$ 24.114	\$ 24.114	\$ 24.114
	17 component 1	\$ 20.300	\$ 5.075	\$ 5.075	\$ 5.075	\$ 5.075

♥ SBS Wizard.ace...ogy (BY2009\$K) 📊 SBS Wizard.ac...r (BY2009\$K)

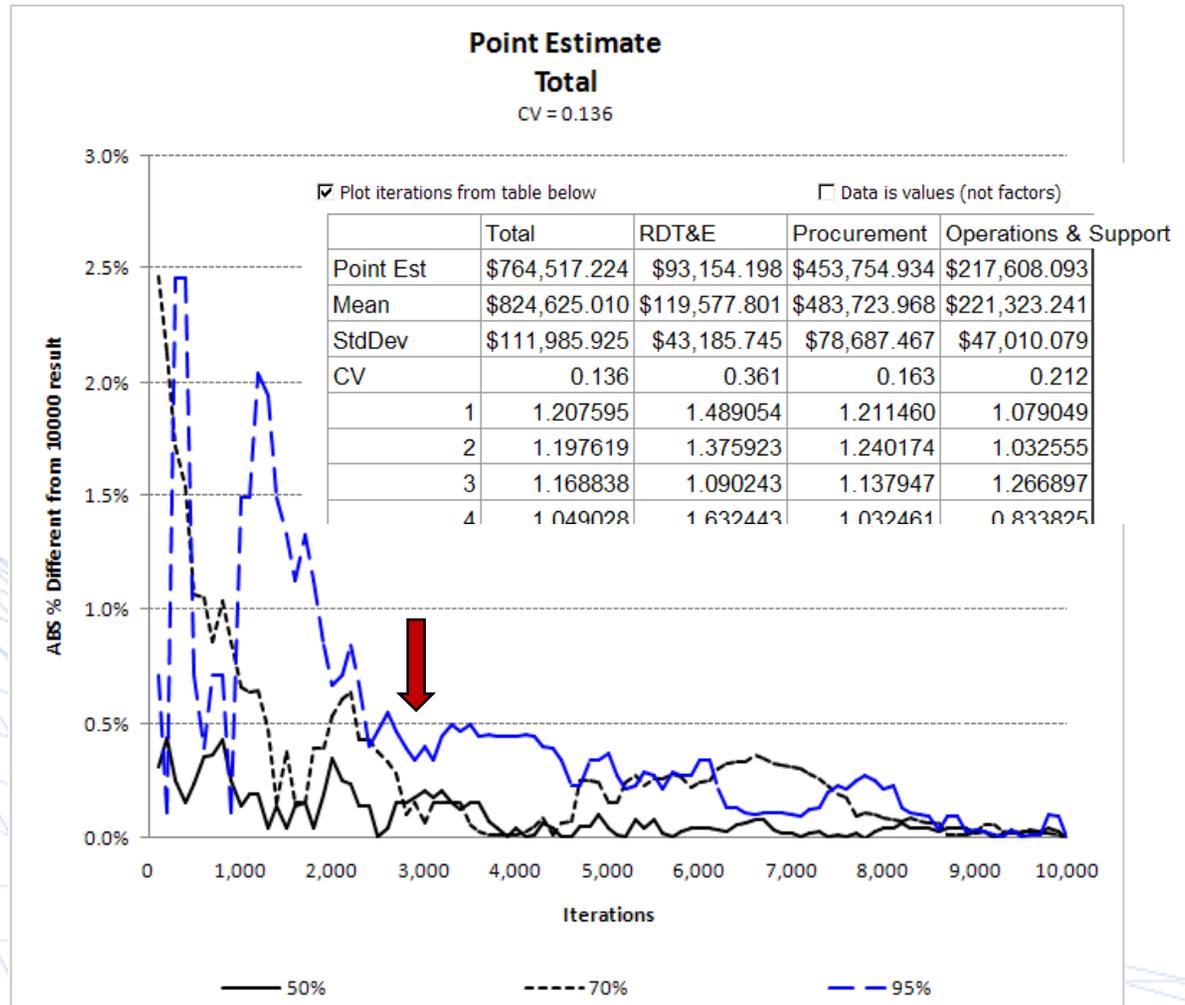
Point Estimate	WBS/CES Description	Total	FY 2009	FY 2010	FY 2011	FY 2012
<input type="checkbox"/> Site 2 Component Cost	15 ABC Site Number for Subsystem Cost	3.				
<input type="checkbox"/> Site 3 Component Cost	16 ABC Subsystem Cost	\$ 35.027	\$ 2.919	\$ 14.595	\$ 2.919	\$ 14.595
	17 component 1	\$ 12.180	\$ 1.015	\$ 5.075	\$ 1.015	\$ 5.075
	18 component 2	\$ 1.247	\$ 0.104	\$ 0.520	\$ 0.104	\$ 0.520
	19 component 3	\$ 4.800	\$ 0.400	\$ 2.000	\$ 0.400	\$ 2.000
	20 component 4	\$ 16.800	\$ 1.400	\$ 7.000	\$ 1.400	\$ 7.000

- **Variance Chart:** added options to report results in terms of **Standard Deviation** or **Relative Contribution (default)** for the “WBS Rollup Elements” option (previously only reported the variance, which are generally very big numbers)
- **Coefficient of Variation (CV)** was added to the risk statistics table below the RISK S-curve chart and as an option to report on the chart.
- Increased the number of **selectable risk plot points to four** (e.g. 50%, mean, 60%, 80%) on the RISK S-curve chart.
- Added a section for **RISK Defaults** to the **POST>Options Reports** tab. This allows the user to set the default for RISK reports for ALL sessions, not just the open session.



RI\$K Convergence Chart

- New **RI\$K Convergence Chart** provides guidance on the number of RI\$K iterations to choose for a selected ACE session
- Iteration data is stored on the sheet below the chart and for this chart you can populate the table with data from any other source
 - Note that when data is supplied by ACE, the table is populated with factors of the point estimate. There are check boxes at the top of the table to tell POST how to interpret the data





Automated Cost Estimating Integrated Tools

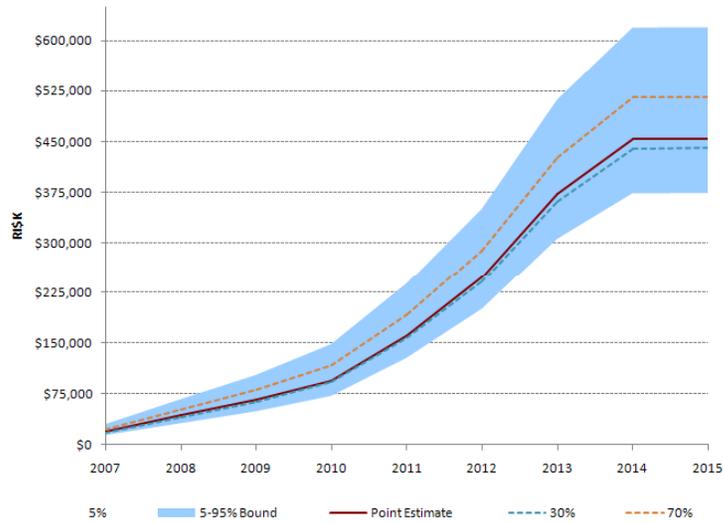
RI\$K Cumulative Fan Chart

Prorate

Point Estimate Procurement

Cumulative BY2010\$K Costs By Year
Calculated with 500 iterations

Allocated from 'Level 2 WBS Elements', spread with 'Prorate'

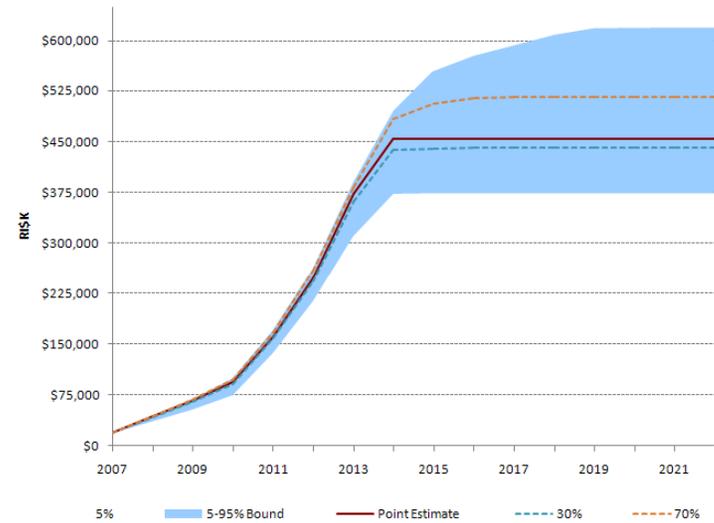


BackLoad

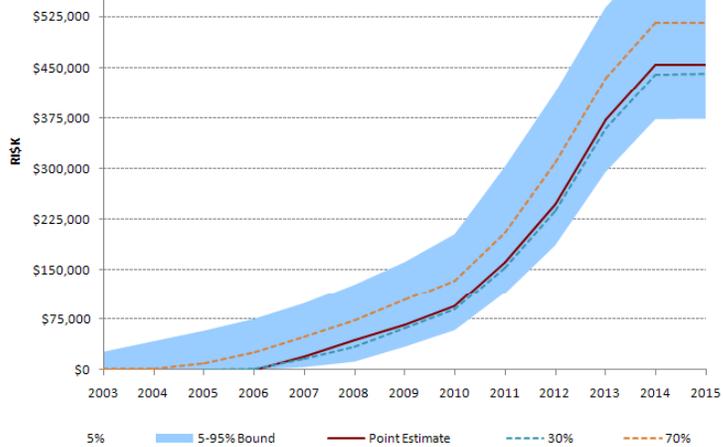
Point Estimate Procurement

Cumulative BY2010\$K Costs By Year
Calculated with 500 iterations

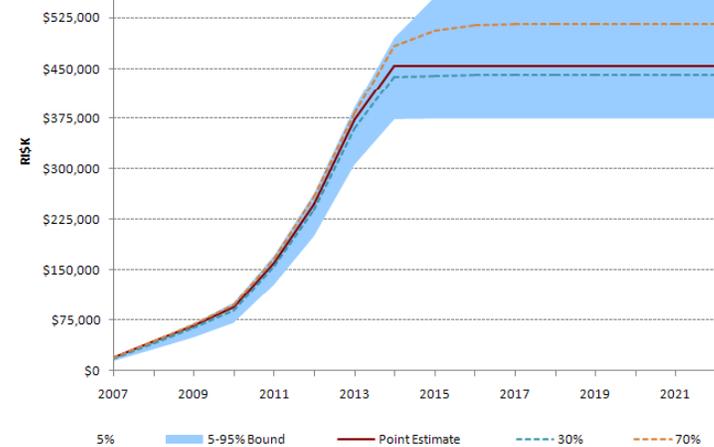
Allocated from 'Level 2 WBS Elements', spread with 'BackLoad'



FrontLoad



StretchLoad



Joint Probability Chart

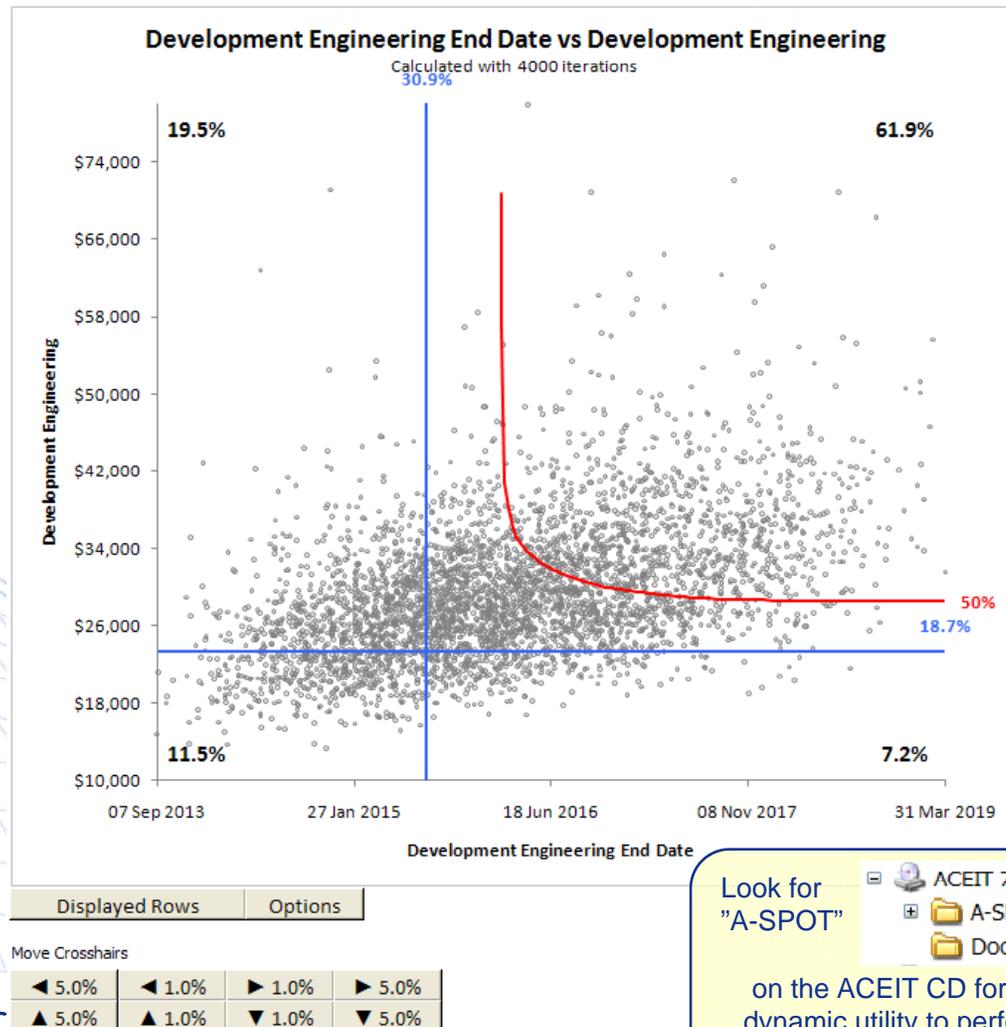
- **New Joint Probability Chart** illustrates the joint probability between two rows. The user can move “crosshairs” to divide the points into quadrants and display the joint probability contained therein
- Statistical and iteration data is stored on the worksheet below the chart, and you can load it with data from any source (not just ACEIT)

Plot iterations from table below

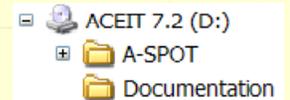
	Development Engineering	Engineering End Date
Point Est	\$23,429	01 Aug 2015
Mean	\$29,487	09 Mar 2016
StdDev	\$7,079	17 Jan 1901
CV	0.240	0.009
1	\$23,052	30 Aug 2016
2	\$30,288	17 May 2015
3	\$35,259	04 Jul 2018
4	\$14,399	01 Mar 2016

Use left/right arrows to move the vertical bar.

Use up/down arrows to move the horizontal bar.



Look for "A-SPOT"



on the ACEIT CD for a more dynamic utility to perform JCL visualization.



Calc engine changes that may affect results

ACE

- In ACE 7.2, the **truncation point (if there is one) is calculated analytically rather than estimated for the Triangular and Uniform distribution**. Our testing shows that this faster and more accurate approach results in percentile differences of less than 0.1% for a single row. When testing the impact of summing 20 such rows, the difference is less than 0.5%. However, in the rare event that you are summing 20 such rows and they are highly correlated, the impact at low percentiles (less than 20%) could be slightly more than 0.5%.
- In ACE 7.2, if a **uniform risk distribution** is applied, the PE position is undefined, the point estimate is outside the 0/100 low/high bounds, AND a **penalty factor** is applied, a fatal error is generated requiring the user to either a) remove the penalty factor or b) assign a mode within the low/high for the purpose of applying the penalty factor. Assigning a mode within a uniform distribution will not affect the uncertainty results if no penalty factor is applied.



Other Calc engine changes that may affect results

ACE

- Using Spread and Skew parameters to define a RI\$K distribution produces a documented (see Help) result, but only when the point estimate (PE) position is the default (i.e., Median for LogNormal/Log-t, and Mode for all other distributions). To avoid unexpected results, **a fatal error will result if Spread or Skew is used and the PE position is not the default.**
- In ACE 7.2, RI\$K distributions can be truncated at both the low and high end. When sessions are converted to 7.2, any truncation information in the old session will be placed in the **Low Truncation** column. This is a problem if RI\$K is being performed on negative numbers because the truncation is actually at the high rather than the low end. To capture this potential inconsistency, ACE 7.2 will generate a fatal error if the Low Truncation specification is greater than the mean. To address the problem, move the truncation to the High Truncation column.