ACEIT 7.2 New Features Revealed

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ACEIT Users Workshop
National - Public Audience
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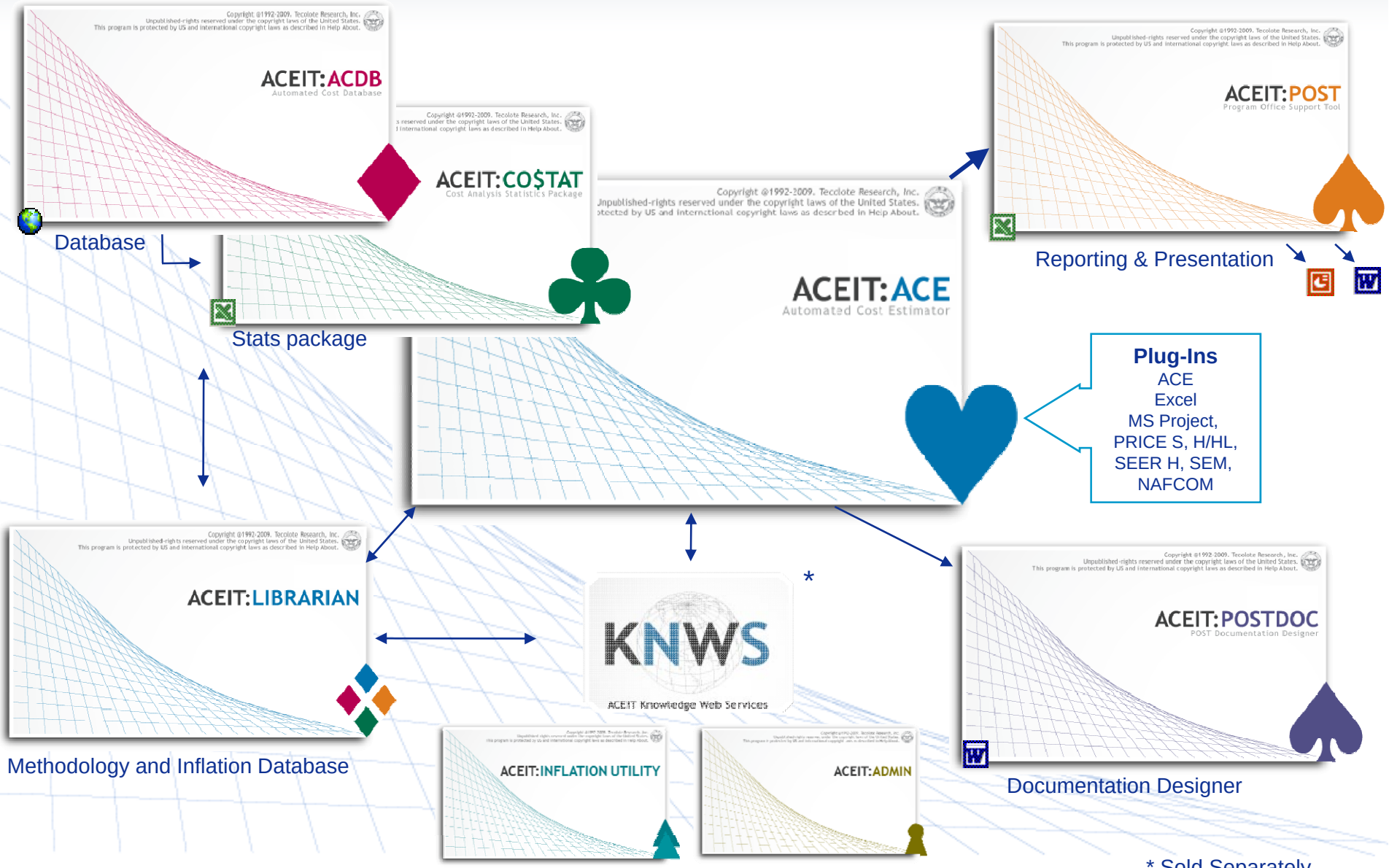
ACEIT 7.2

Automated Cost Estimating Integrated Tools



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* Sold Separately

ACEIT 7.2 Highlights

- **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

☆ Live Demo

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ACE New Features

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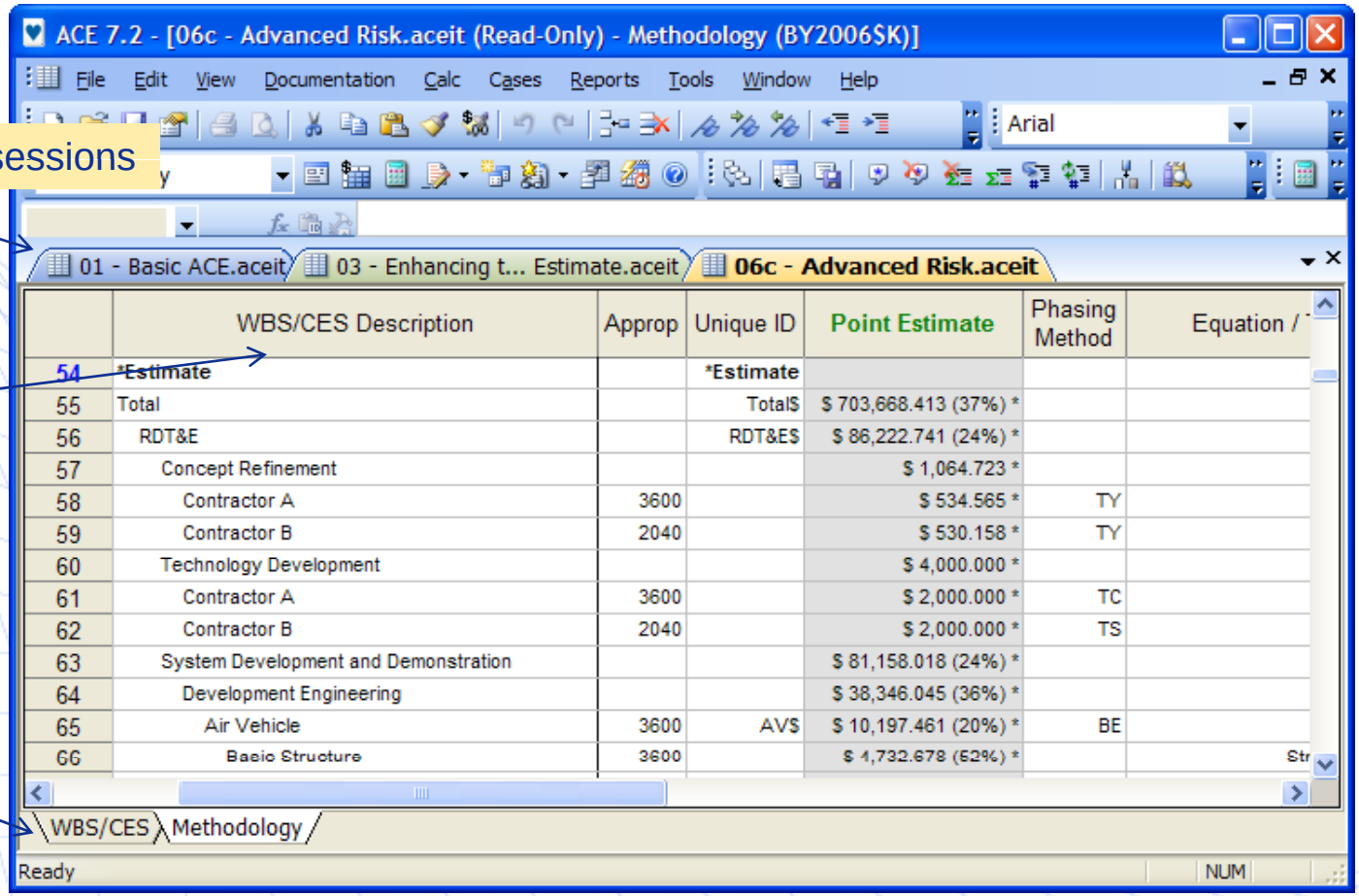
Tabbed Session Windows

- **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



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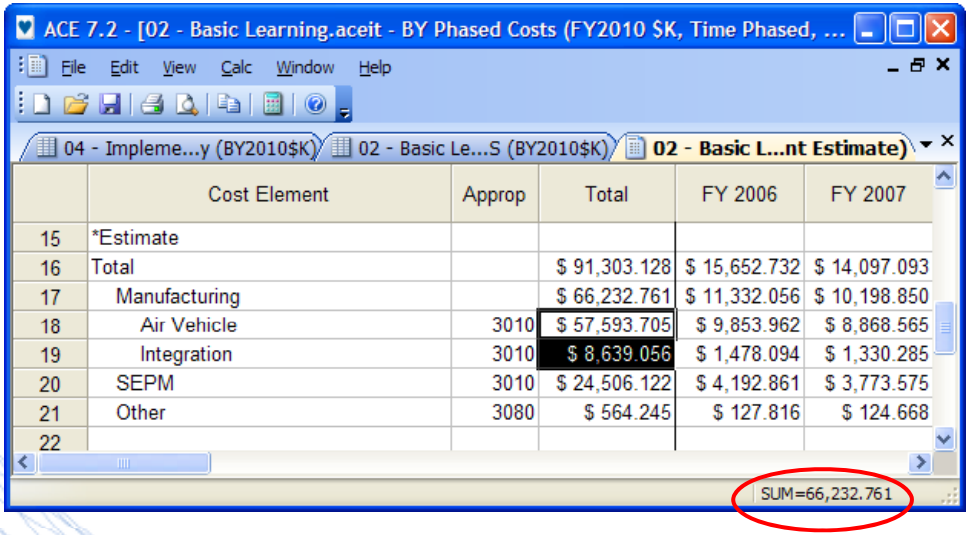
ACE 7.2 Enhancements

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



	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					

- 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 *		
33	Contractor A	$ 2,084.592 *		roughput]
34	Contractor B	$ 2,068.938 *		roughput]
35	System Development and Demonstration	$ 87,631.153 *		
36	Development Engineering	$ 41,444.370 *		
37	Air Vehicle	$ 10,958.768 *		

% - Percent of Total Obligated
BE - Beta Curve
TC - Trapezoid Based on Cost
TS - Trapezoid Based on Schedule
BY - Base Year Throughput
TY - Then Year Throughput
SY - Same Year Throughput
R - Learning
F - FY Factors
A - Average
C - Constant
I - Input Variables
IS - Input Variables that Sum

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

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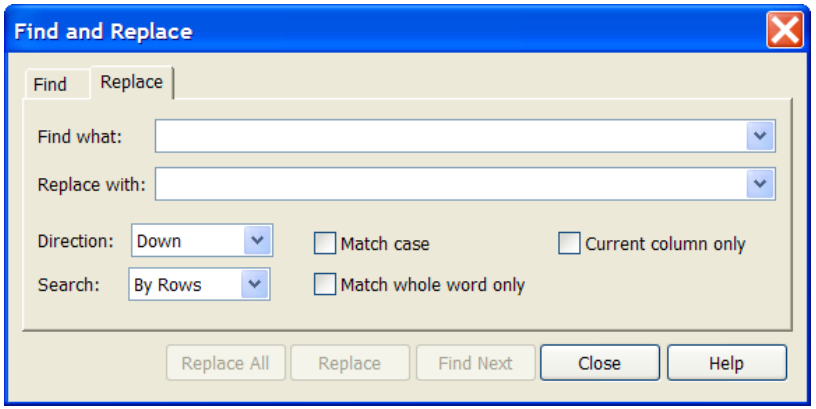
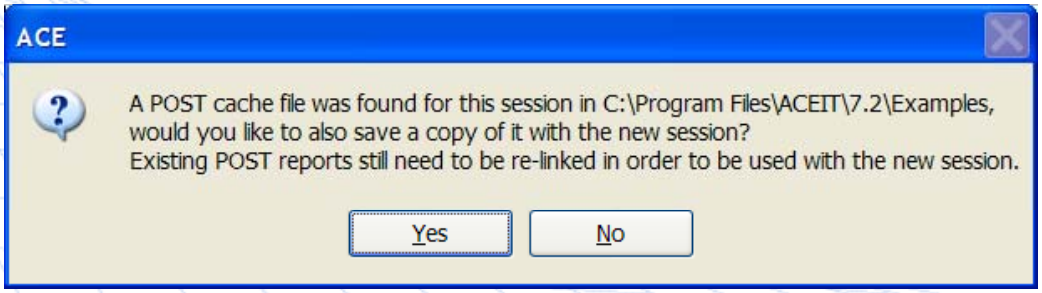
ACE 7.2 Enhancements

- 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



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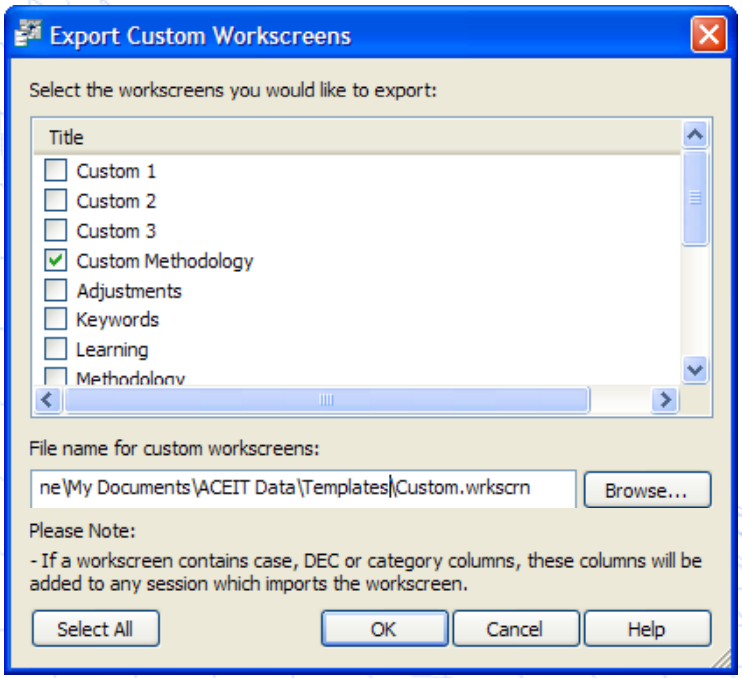
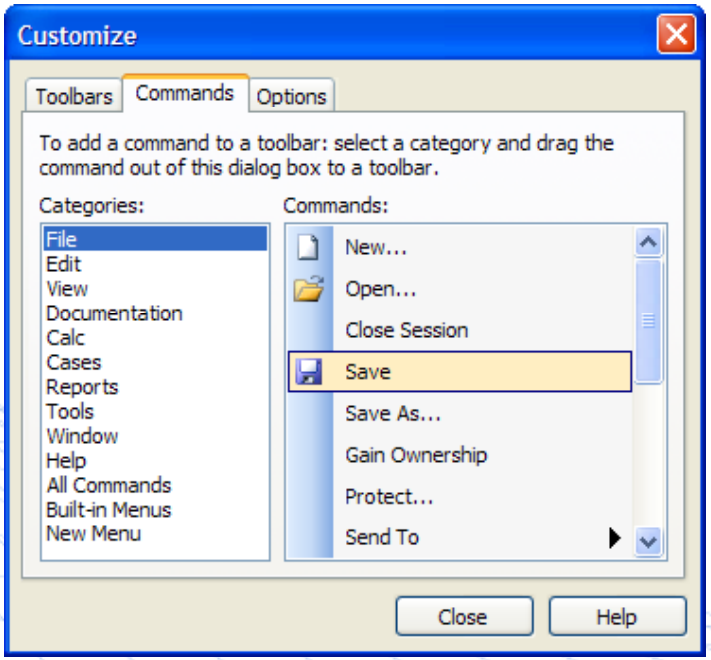
ACE 7.2 Enhancements

- 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**



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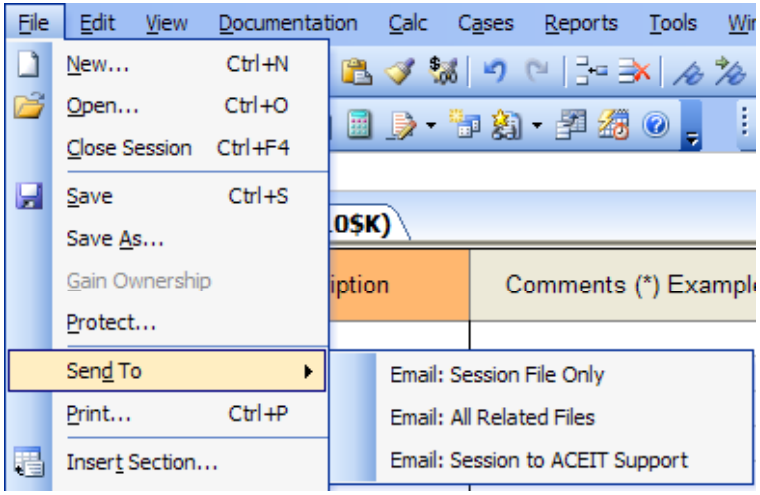
ACE 7.2 Enhancements

- 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.

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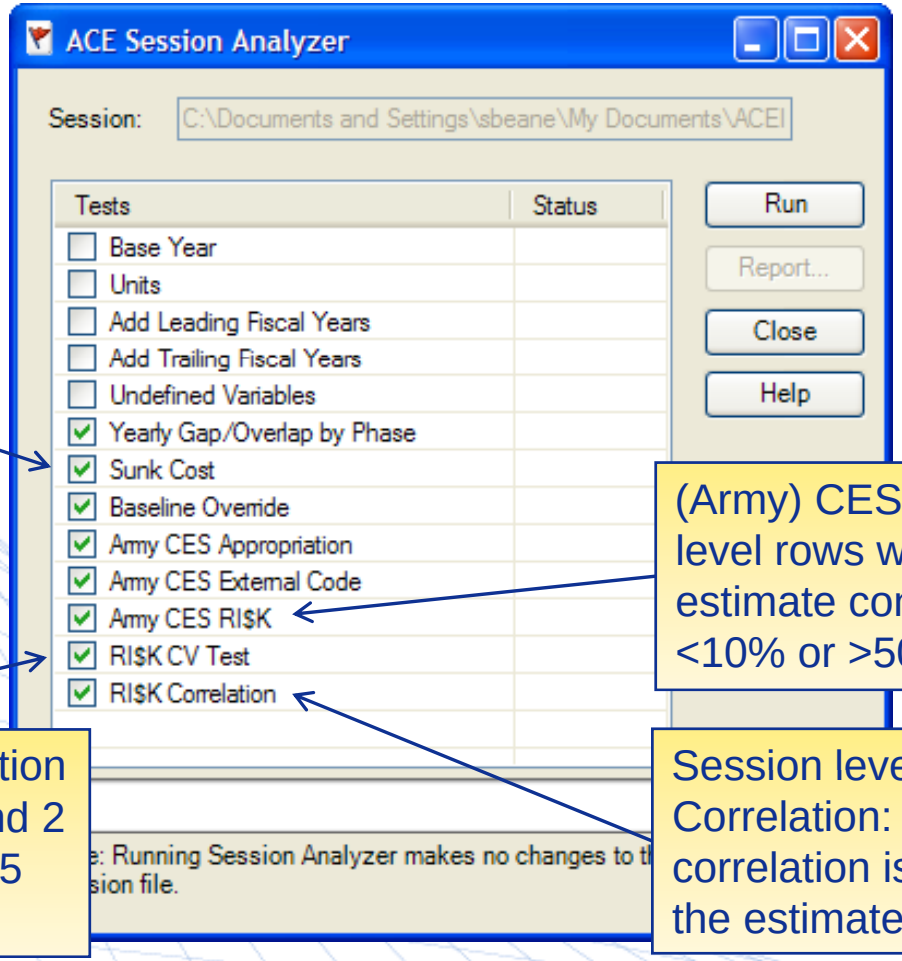
New Session Analyzer Tests



Flags Sunk costs past the current year

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

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

Session level RI$K Correlation: checks that correlation is defined within the estimate

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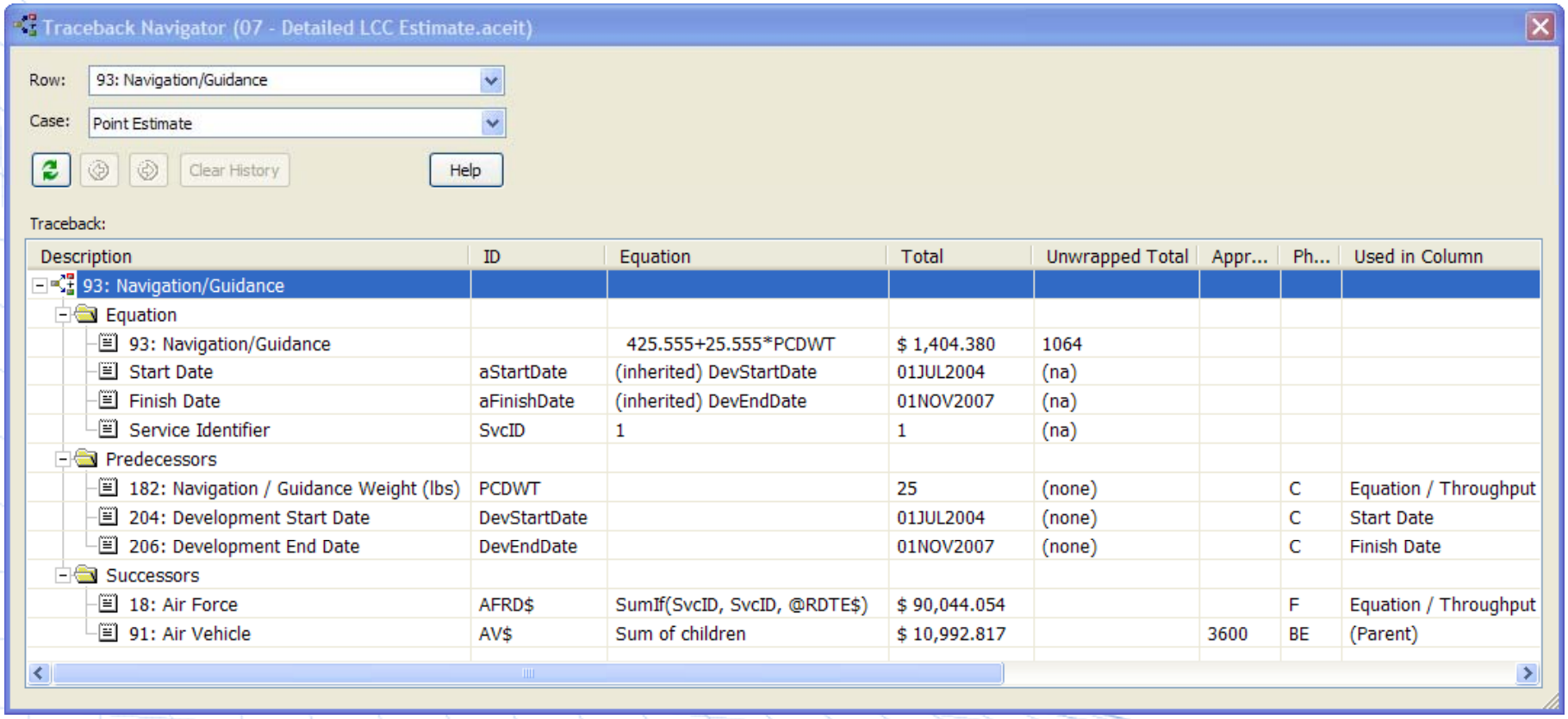
New Traceback Navigator Interface

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



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)

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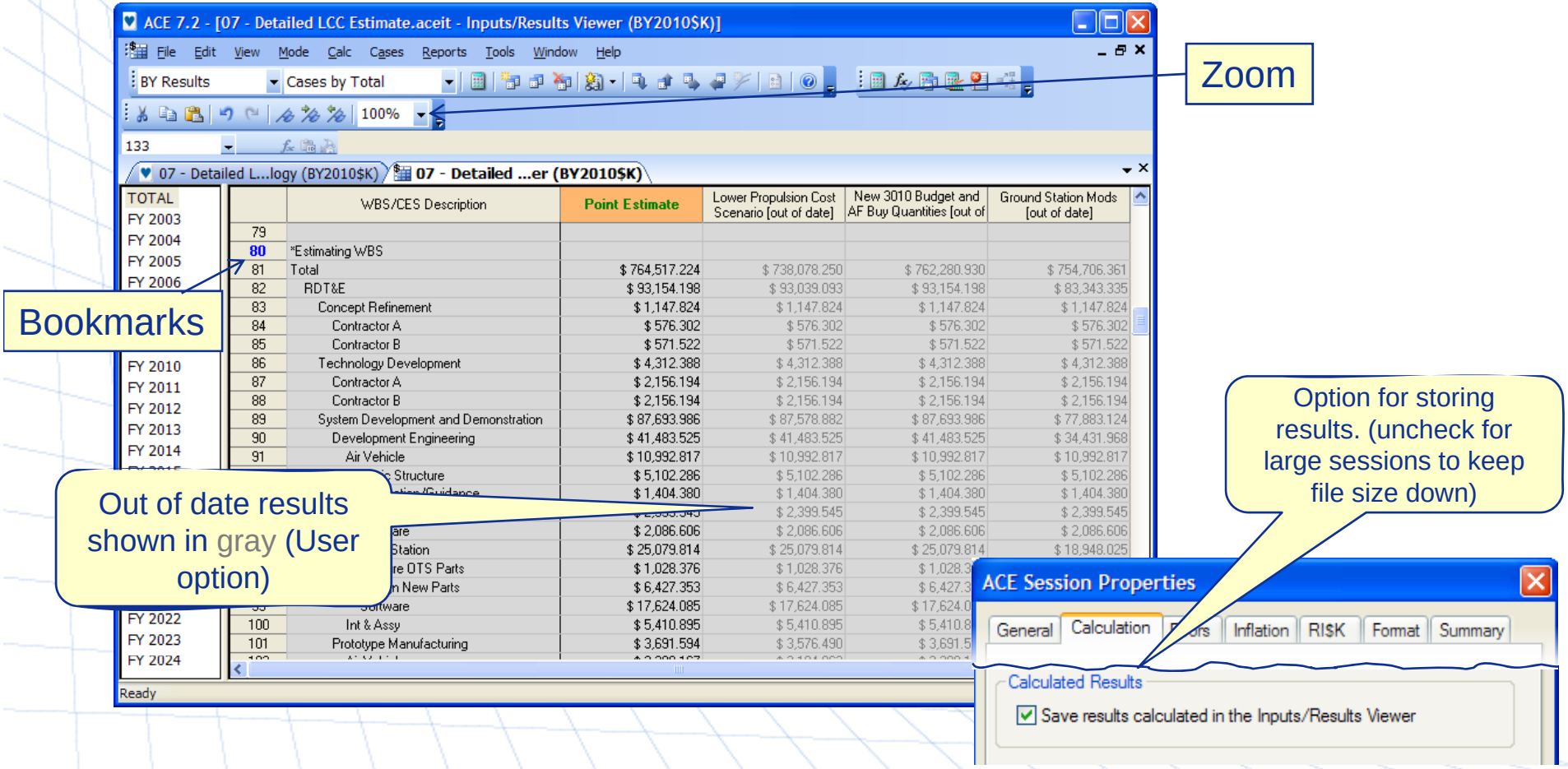
Inputs/Results Viewer Improvements

- **Inputs/Results Viewer (IRV) enhancements:** calculation results are stored so you don't have to calculate as often, bookmarks, zoom, and row and column header highlighted for current cell



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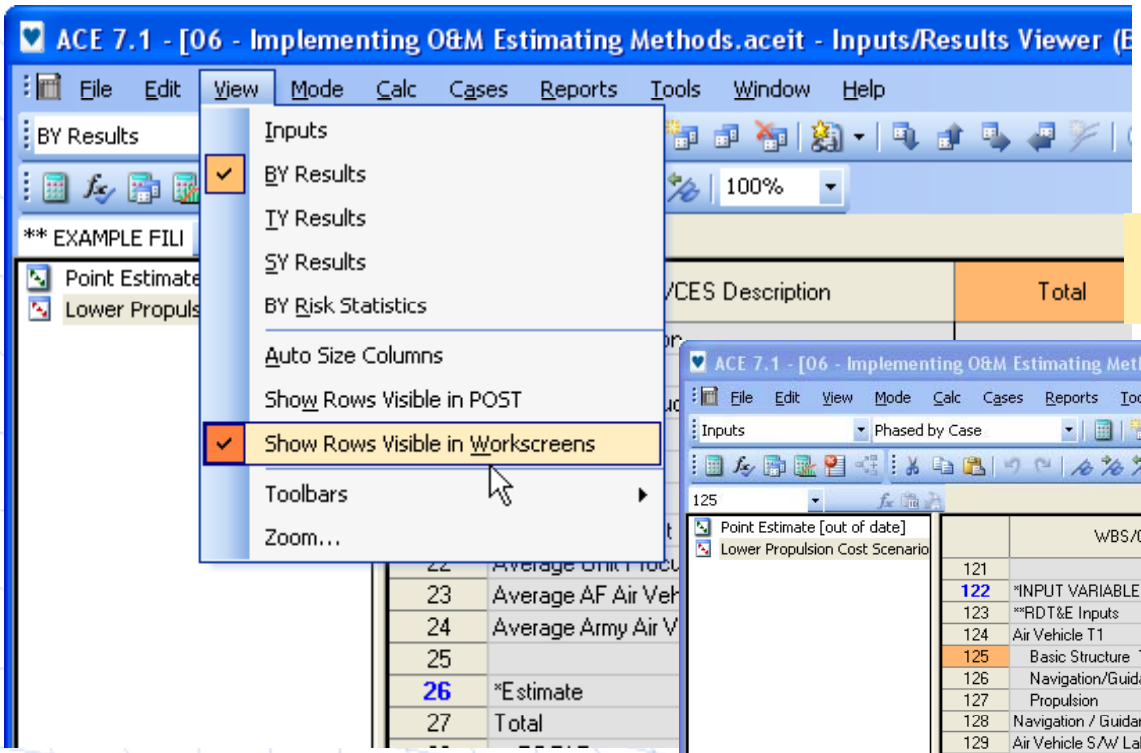
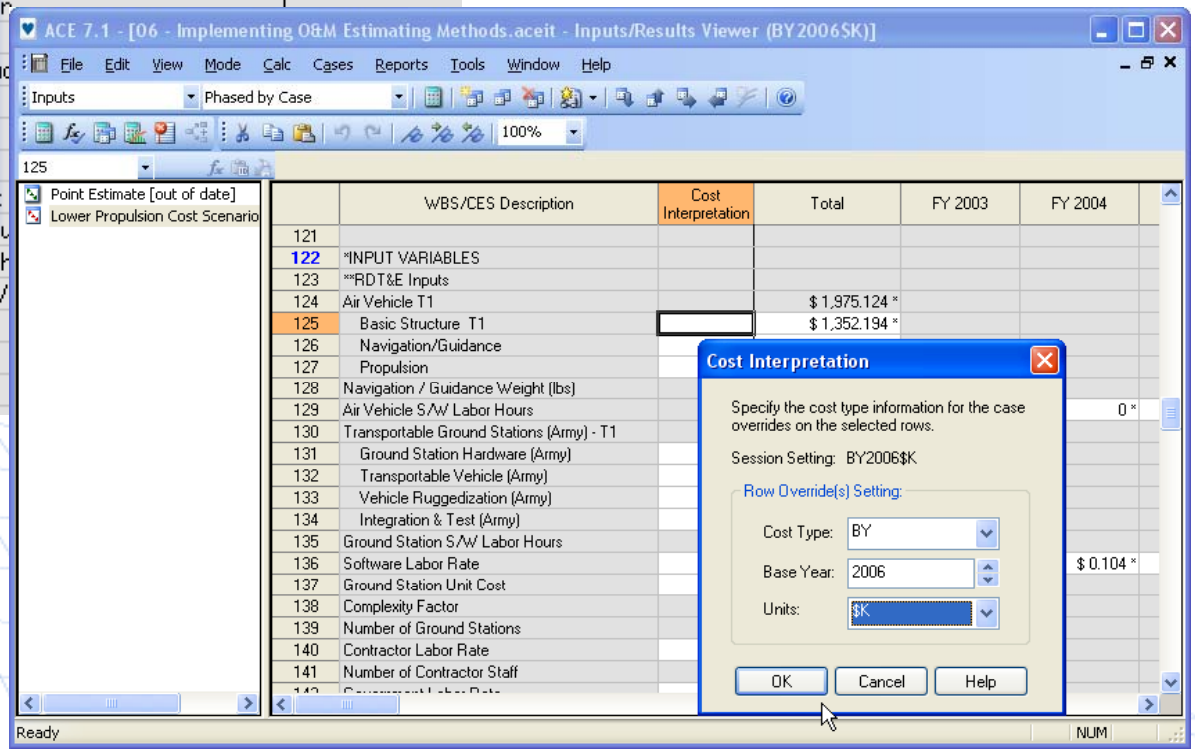
IRV Improvements *(cont.)*

IRV synchronized with the workscreen for hidden rows



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



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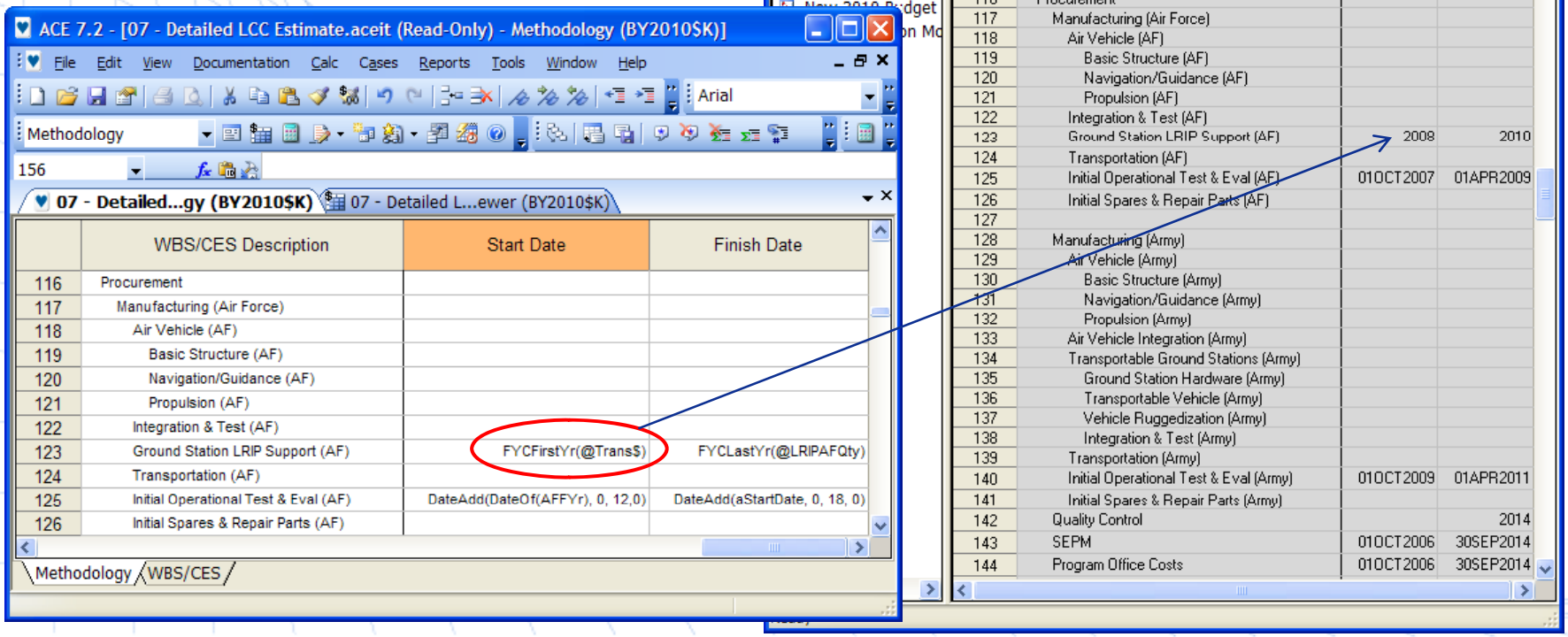
Other IRV Improvements

- 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 DECs to customize the view.



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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.

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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, @HWReq, 2, num_rows)			
17	Number of Fuel Tanks needed for HW with Qty = 8		2.000 *	VLookup(8, @HWReq, 2, num_rows)			
18	Number of Fuel Tanks needed for HW with Qty = 10		2.000 *	VLookup(10, @HWReq, 2, num_rows)			
19	ManPower needed for HW with Qty 17		8.000 *	VLookup(17, @HWReq, 3, num_rows)			
20	ManPower needed for HW with Qty 50		8.000 *	VLookup(50, @HWReq, 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	HWReq	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 HWReq 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.

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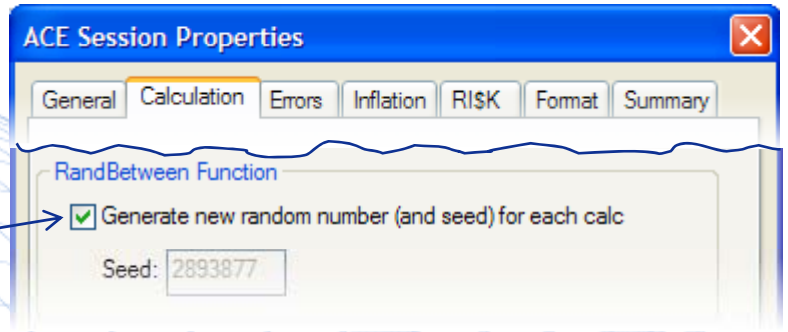
Functions and Phasing Methods

- 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



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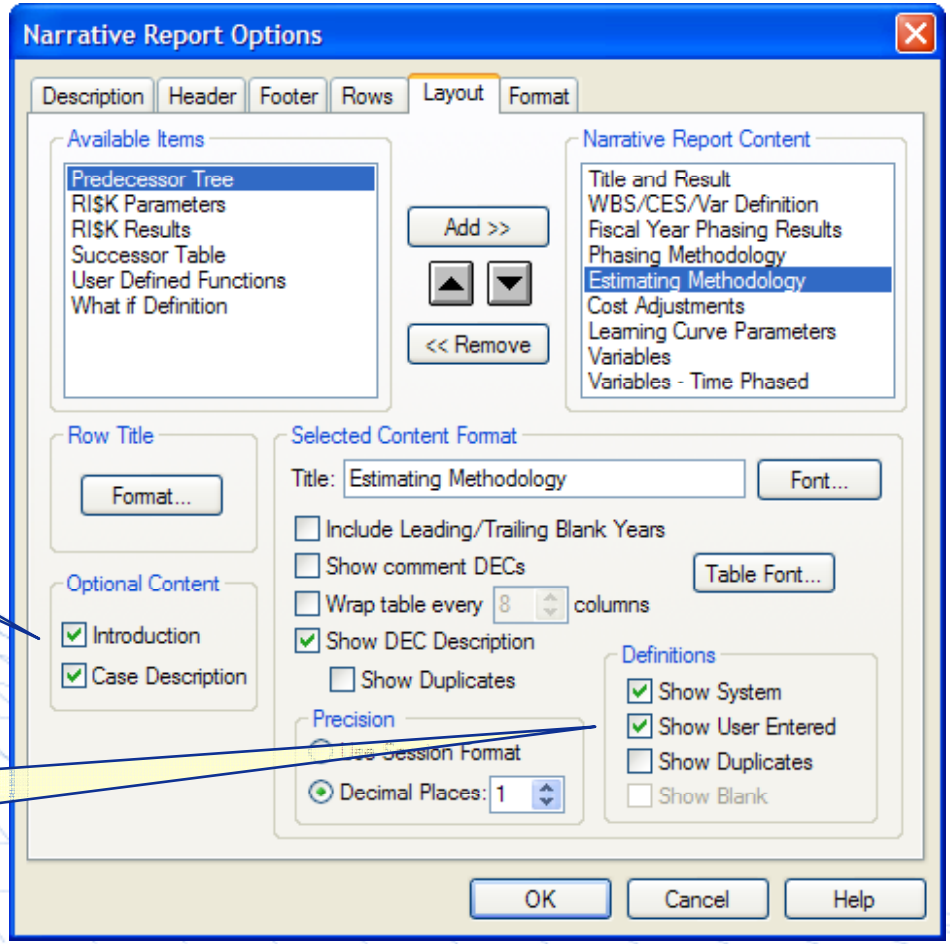
Documentation and Reporting

- 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



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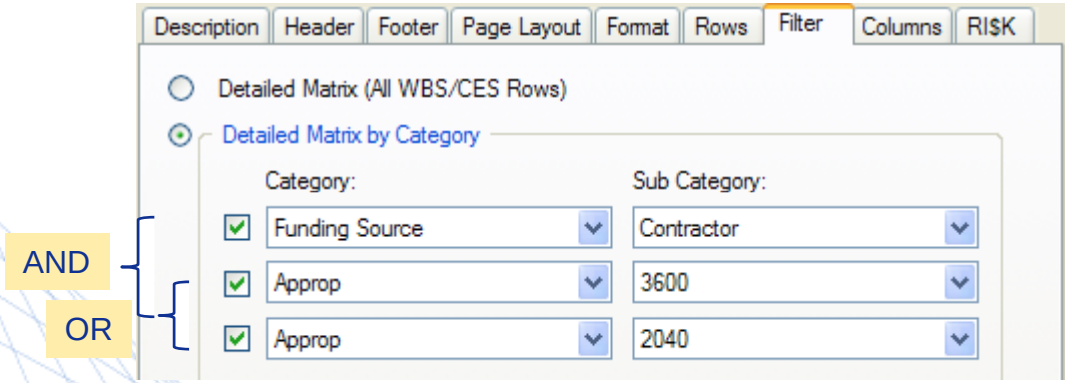
Documentation and Reporting

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



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

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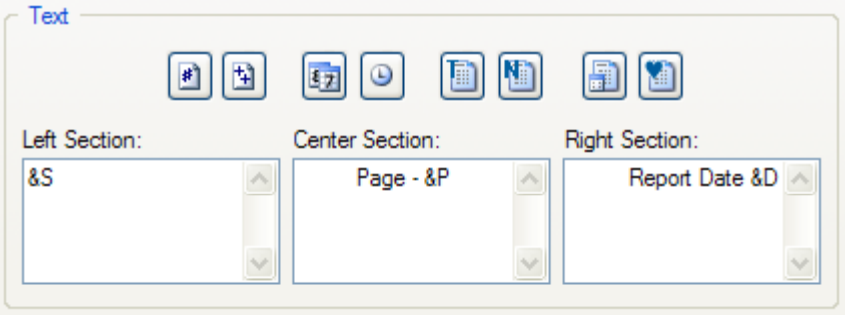
Documentation and Reporting

- 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

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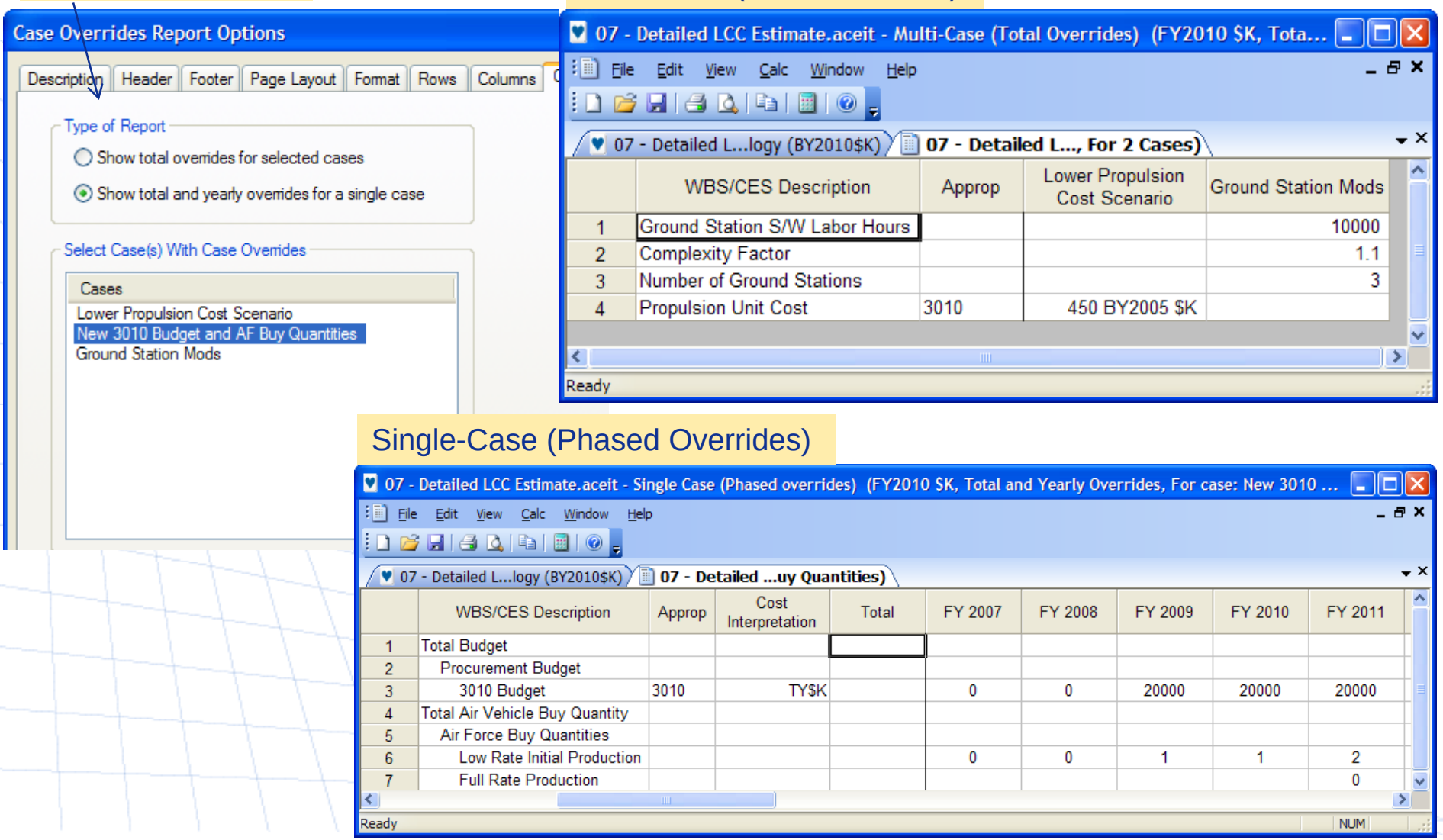
Case Overrides Report

Two format options

Multi-Case (Total Overrides)

Single-Case (Phased Overrides)



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RI$K Enhancements

- 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"

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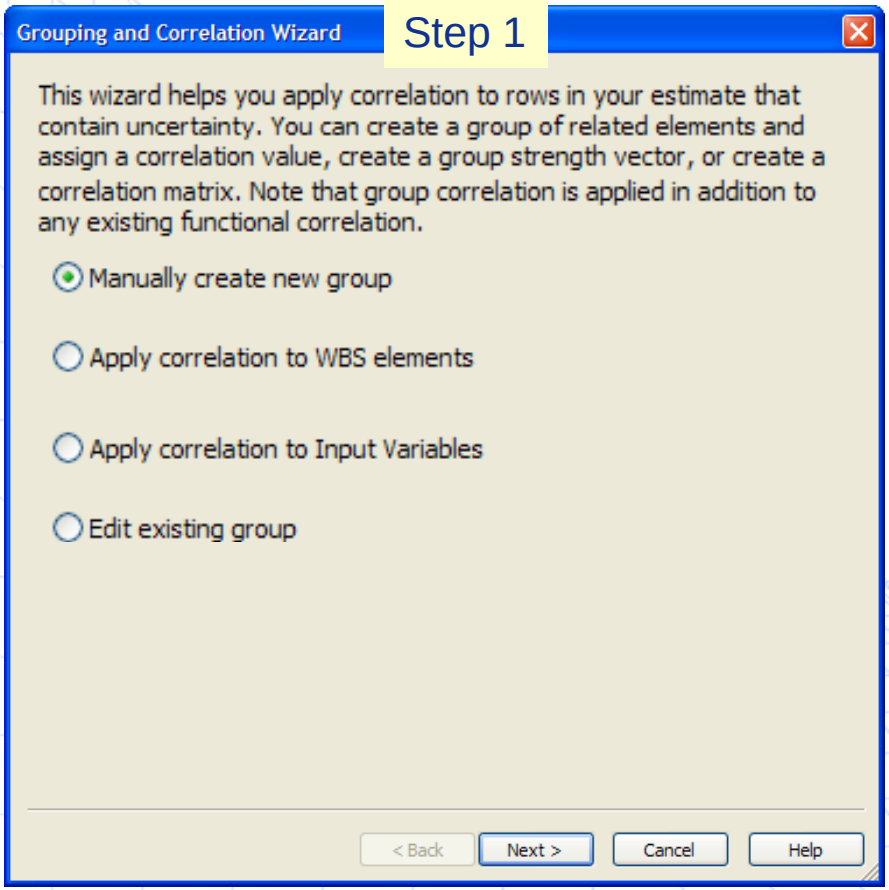
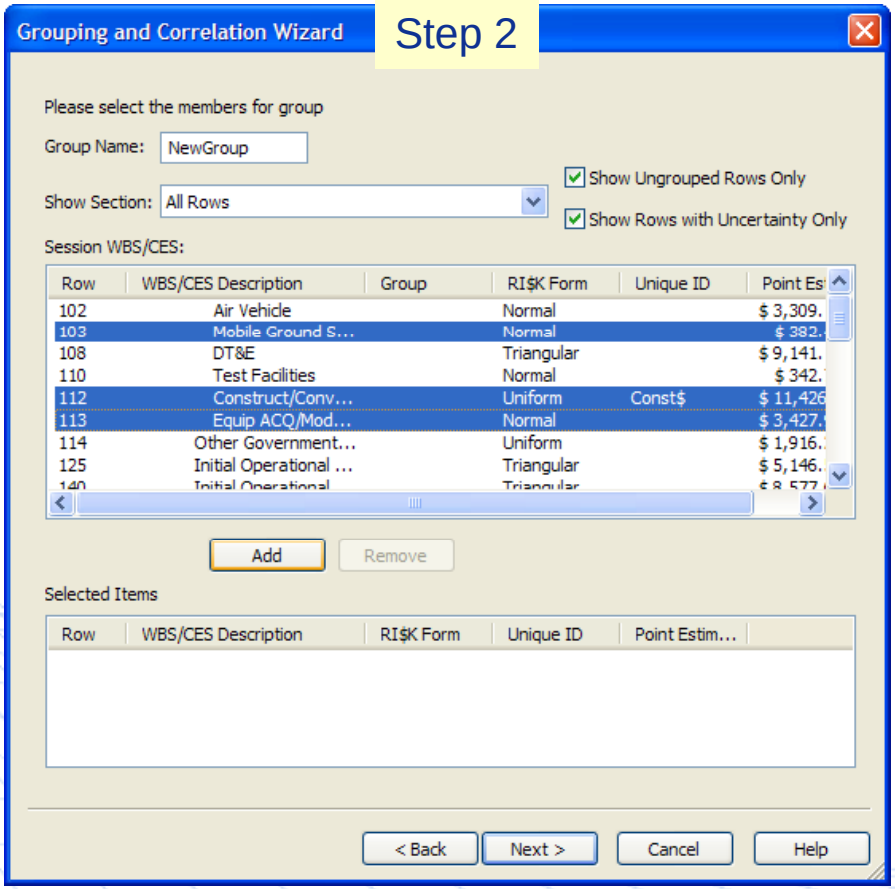
RI$K Grouping and Correlation Wizard

- **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





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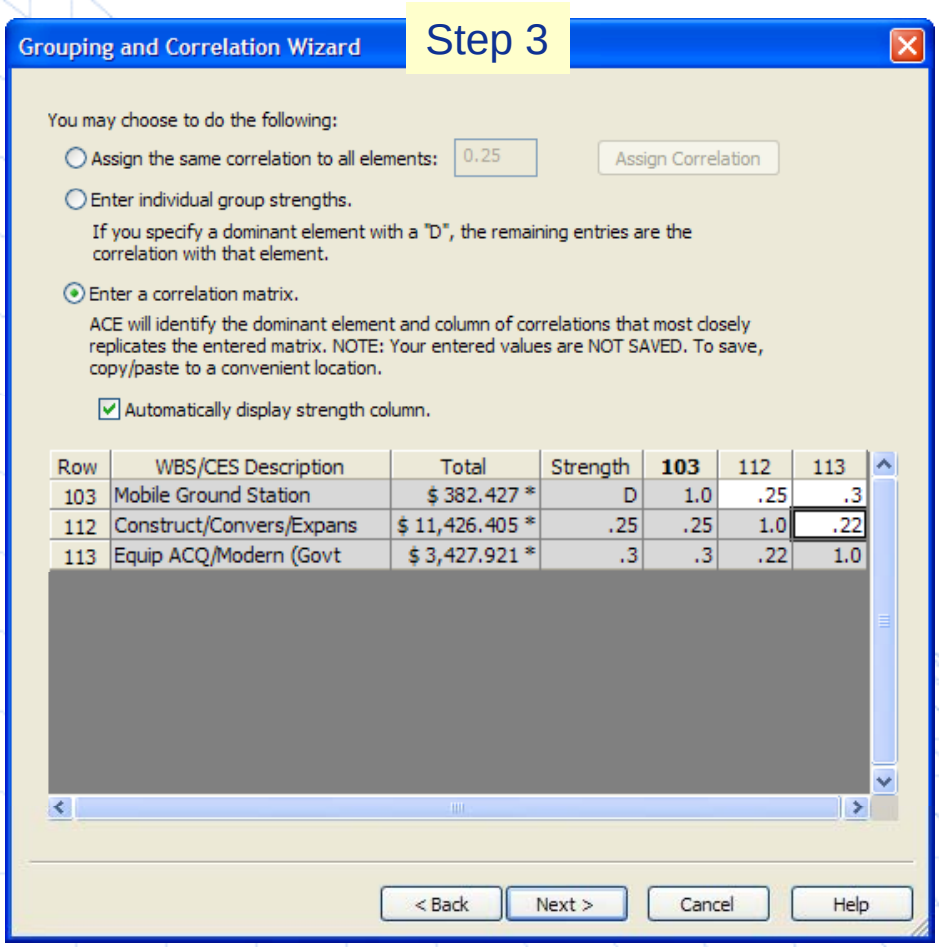
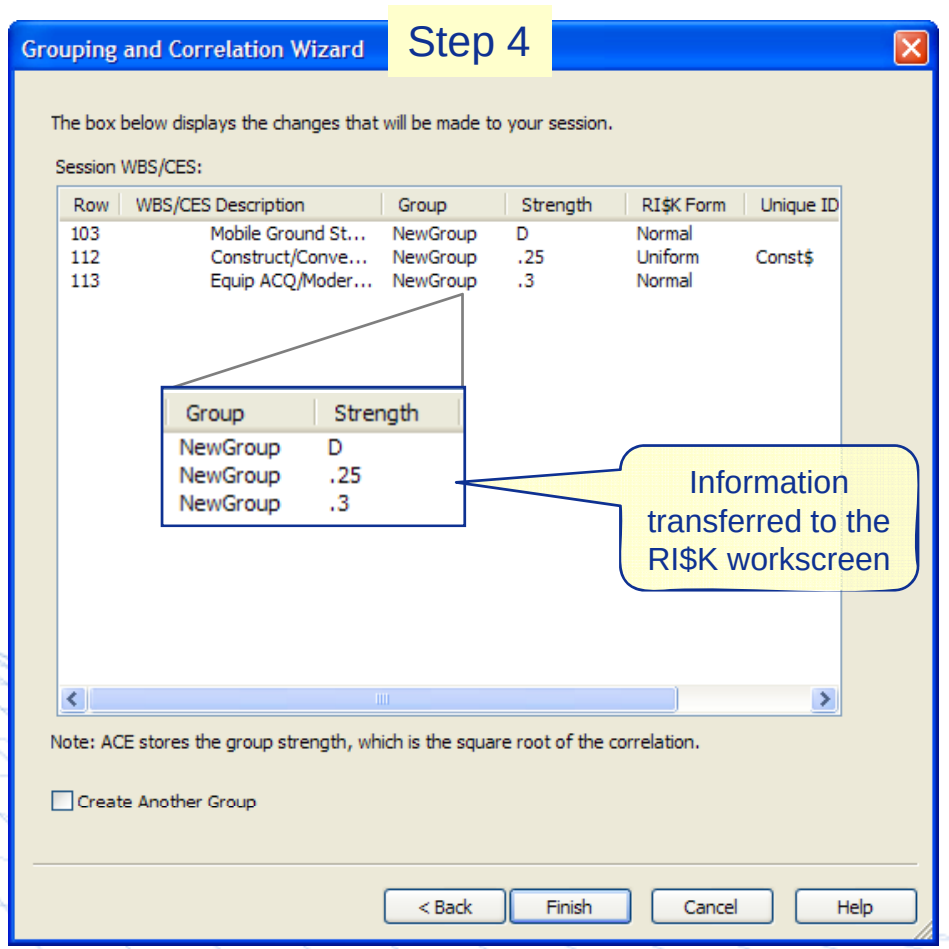
RI$K Grouping and Correlation Wizard

- **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





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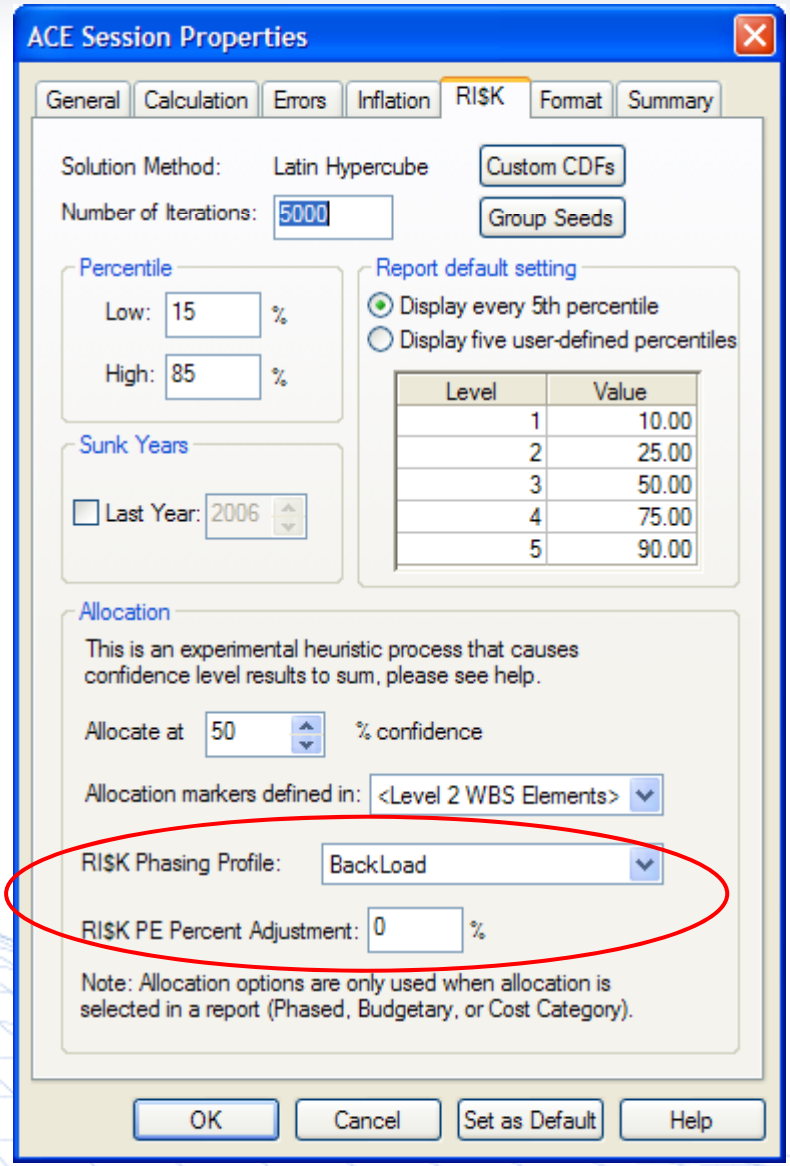
Phasing RI$K allocated dollars

- 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.



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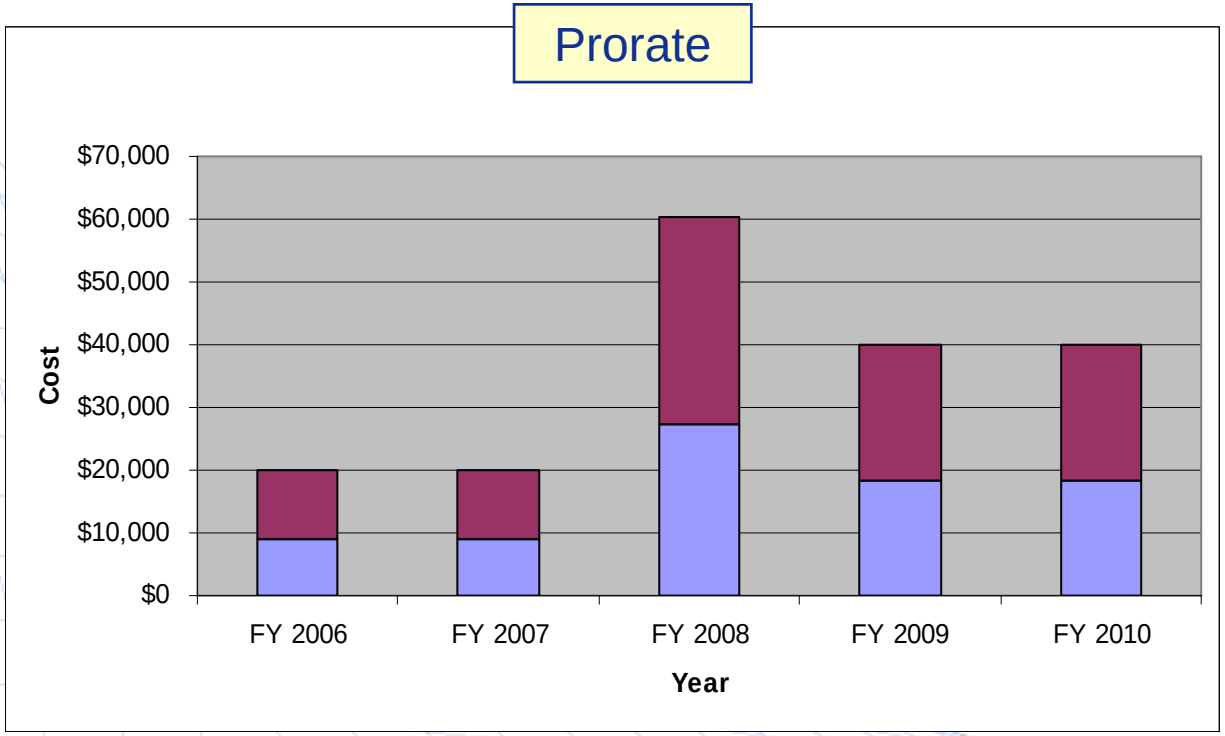
Default RI$K Phasing Profile

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



  - Original Point Estimate phased results
  - Risk dollars

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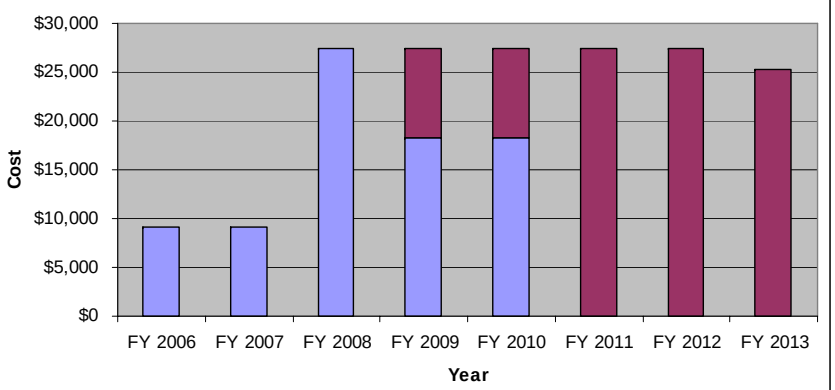
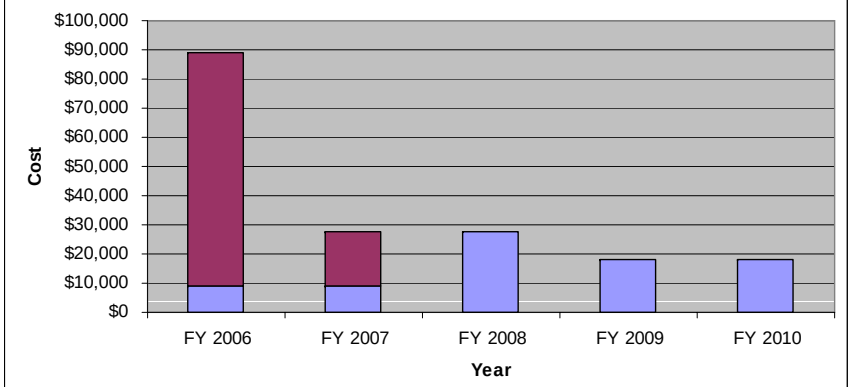
New RI$K Phasing Profiles

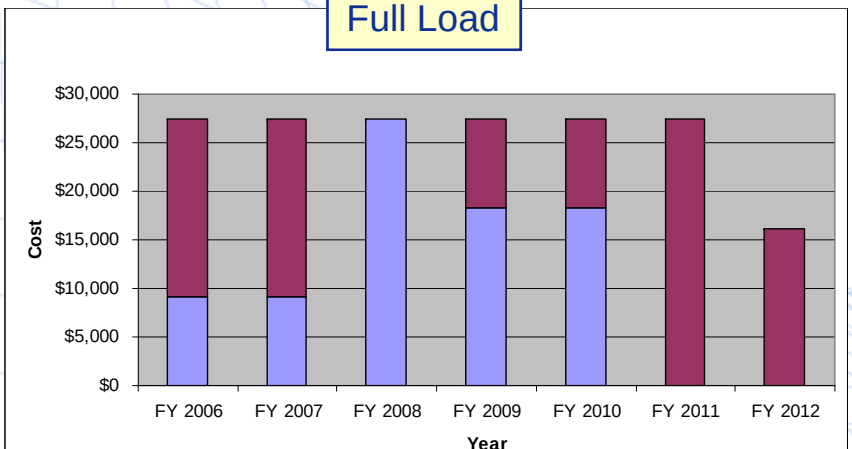
Back Load



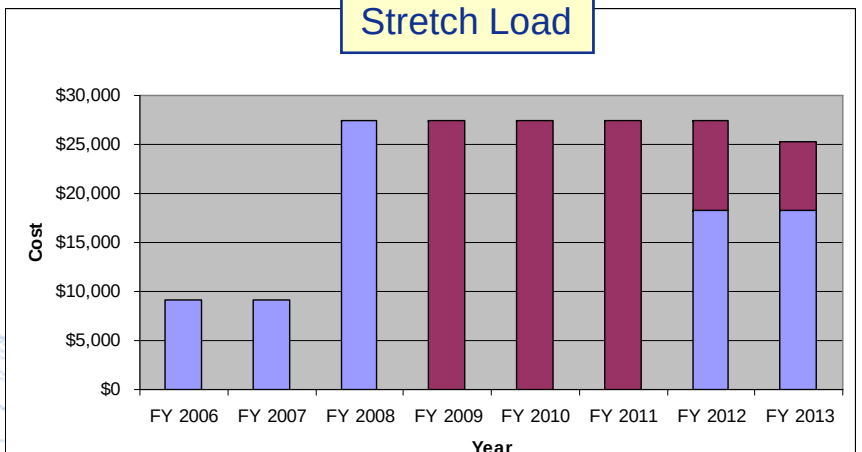
Front Load



Full Load



Stretch Load



- Original Point Estimate phased results
- Risk dollars

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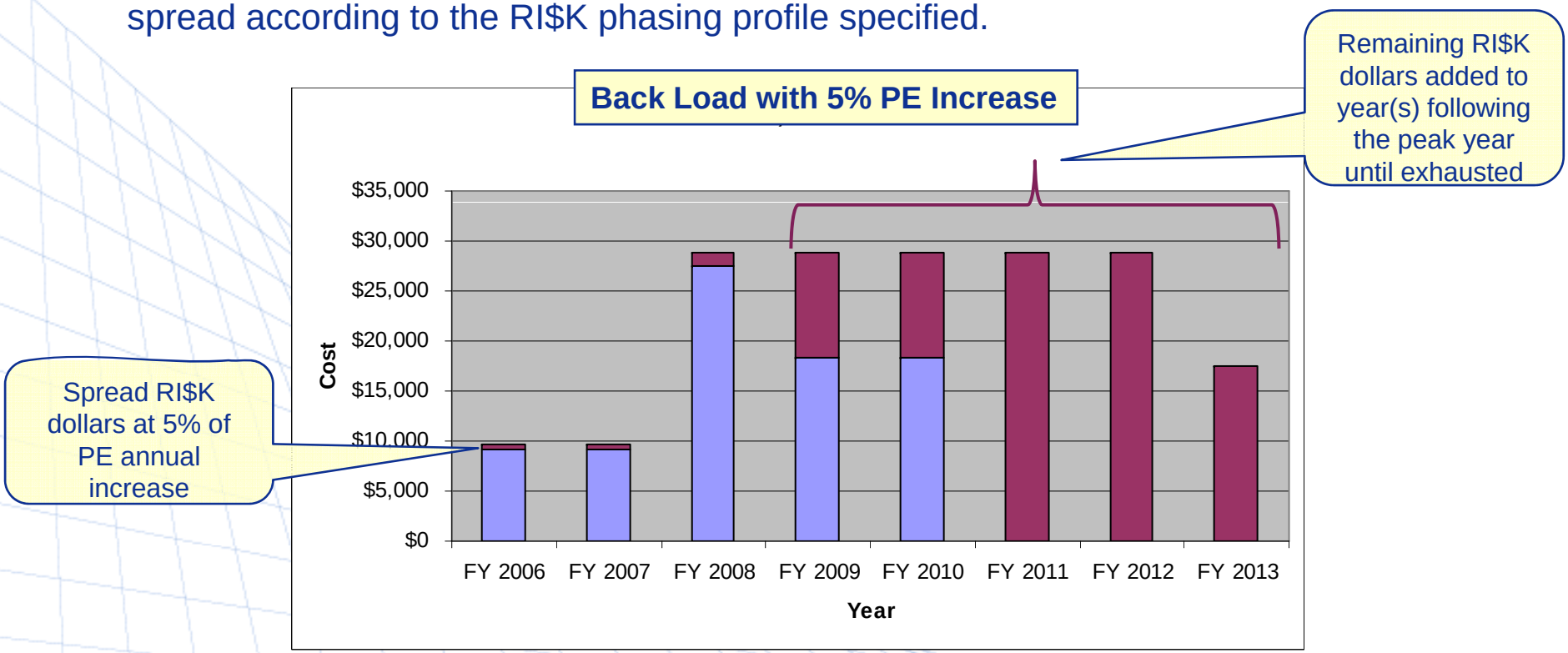
RI$K PE % Adjustment

- **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

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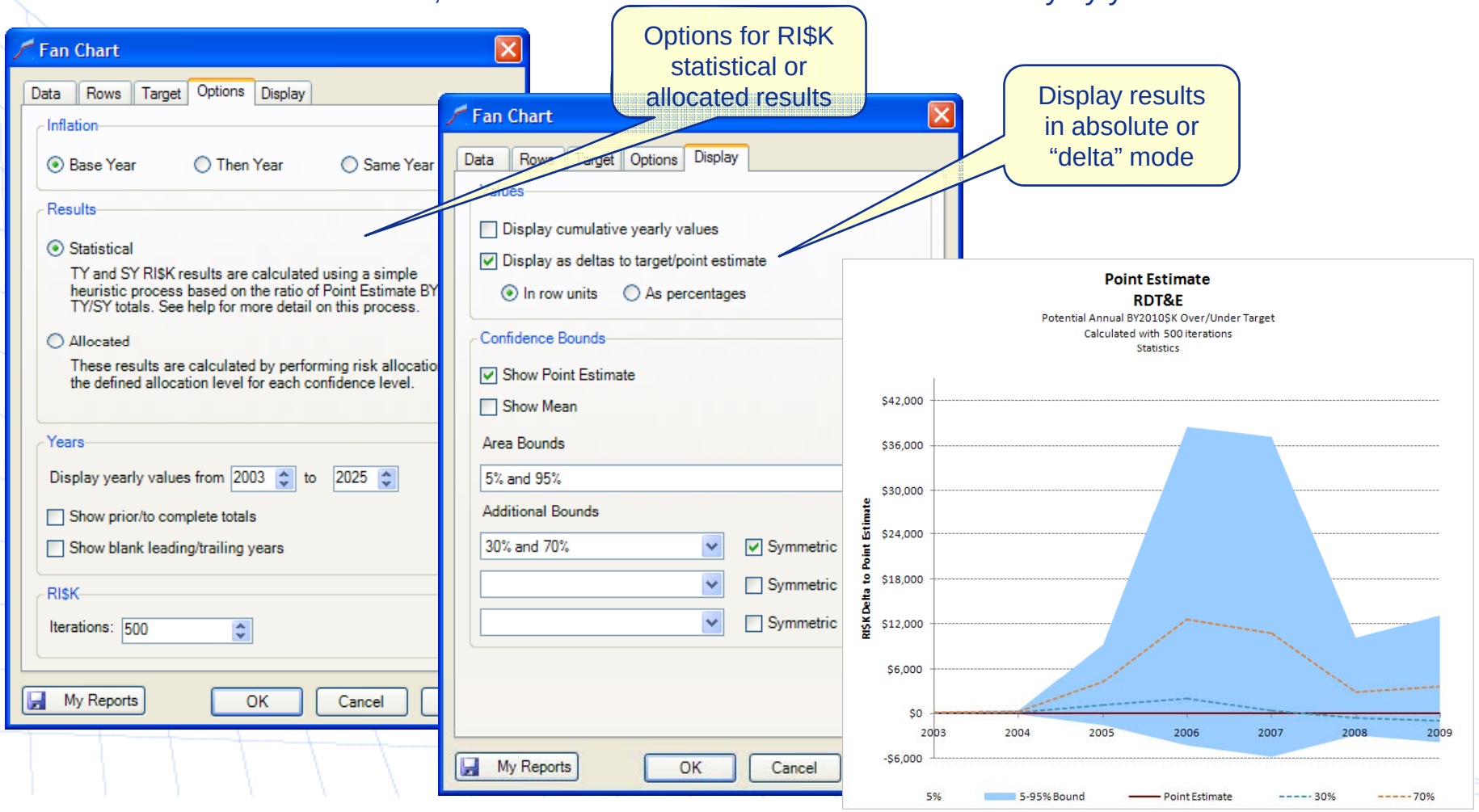
RI$K POST Fan Chart

- **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



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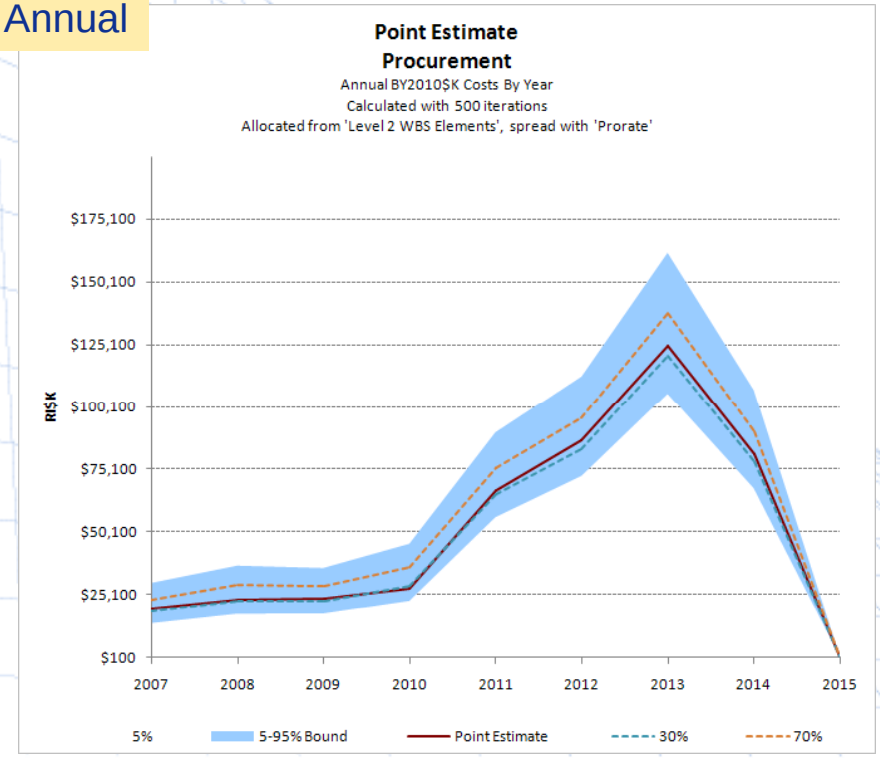
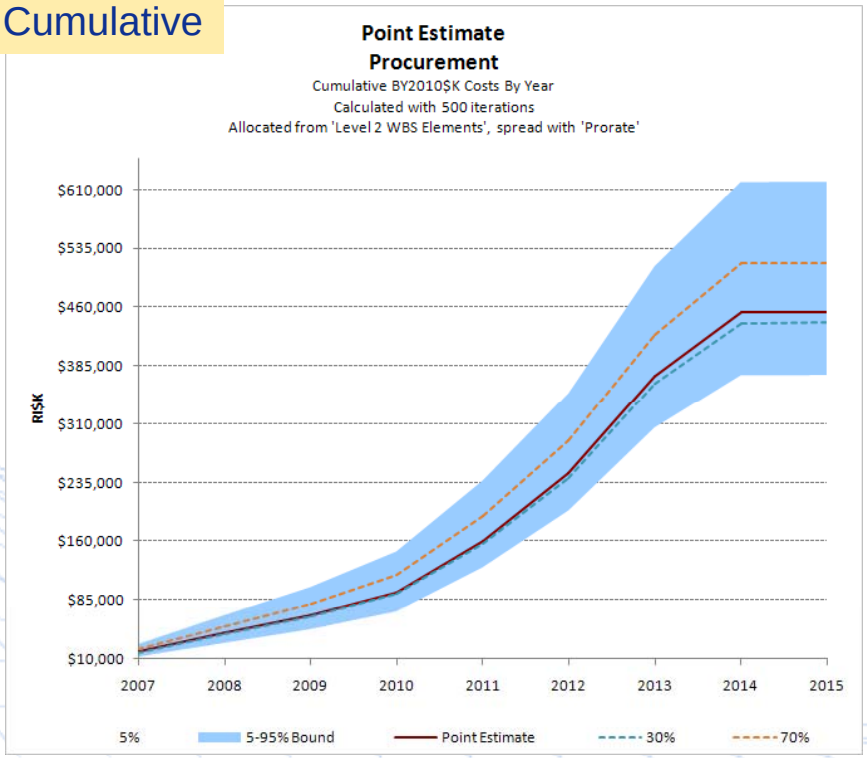
RI$K Fan Chart

- **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 RI$K statistical or allocated results in absolute or “delta” mode

Annual



Cumulative



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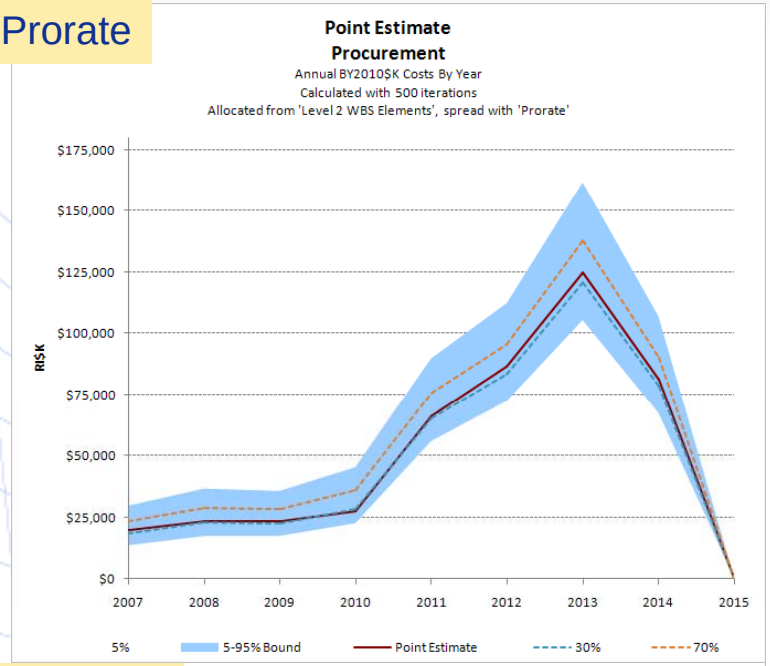
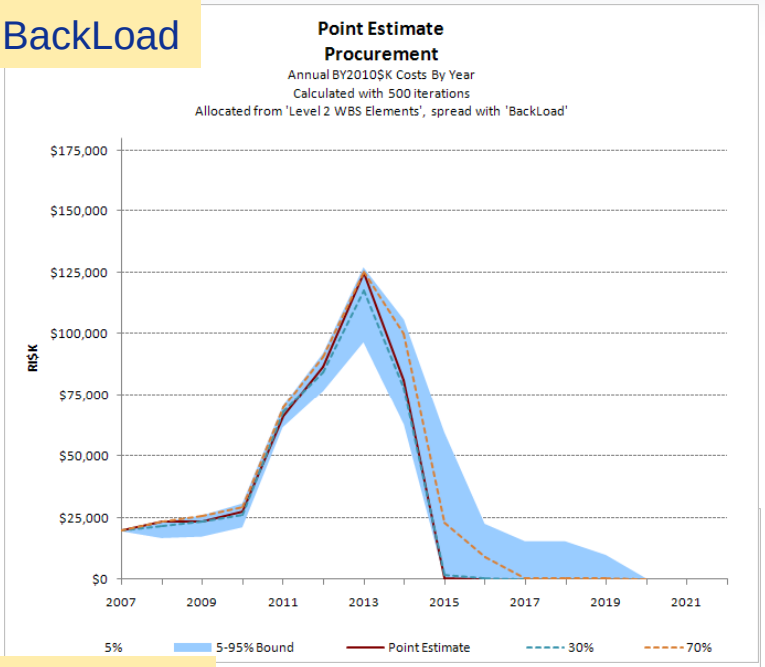
RI$K Fan Chart

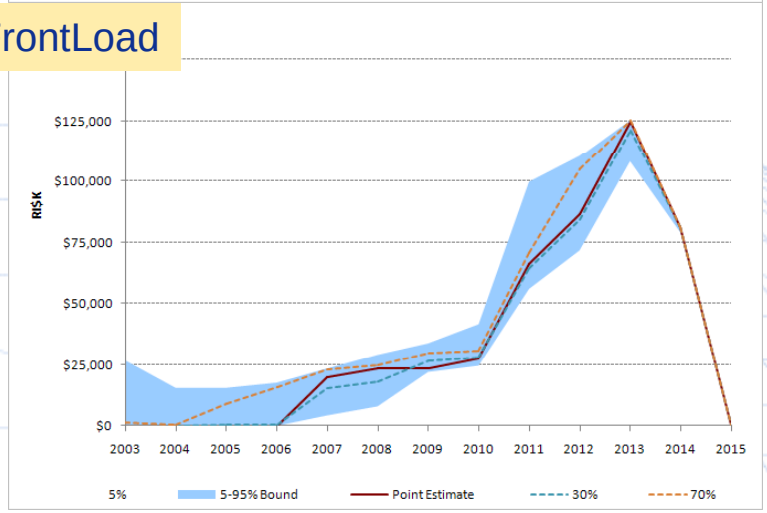
Prorate



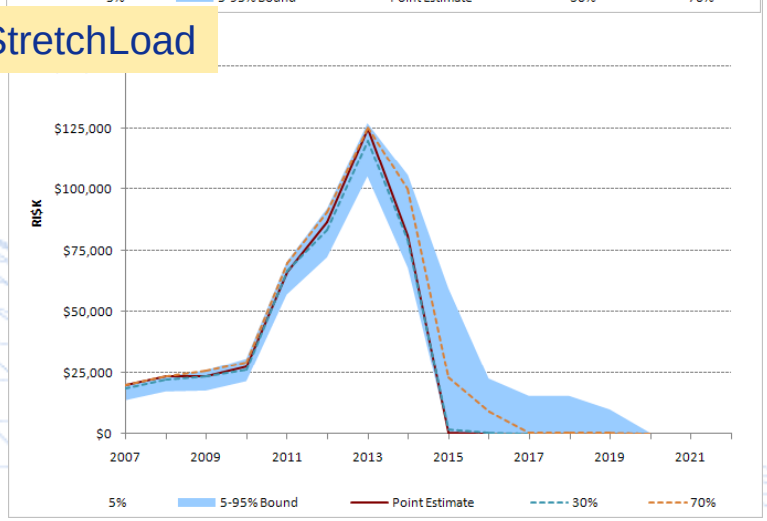
BackLoad



FrontLoad



StretchLoad



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ACE Plug-ins

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ACE Plug-in Enhancements

- **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

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POST New Features

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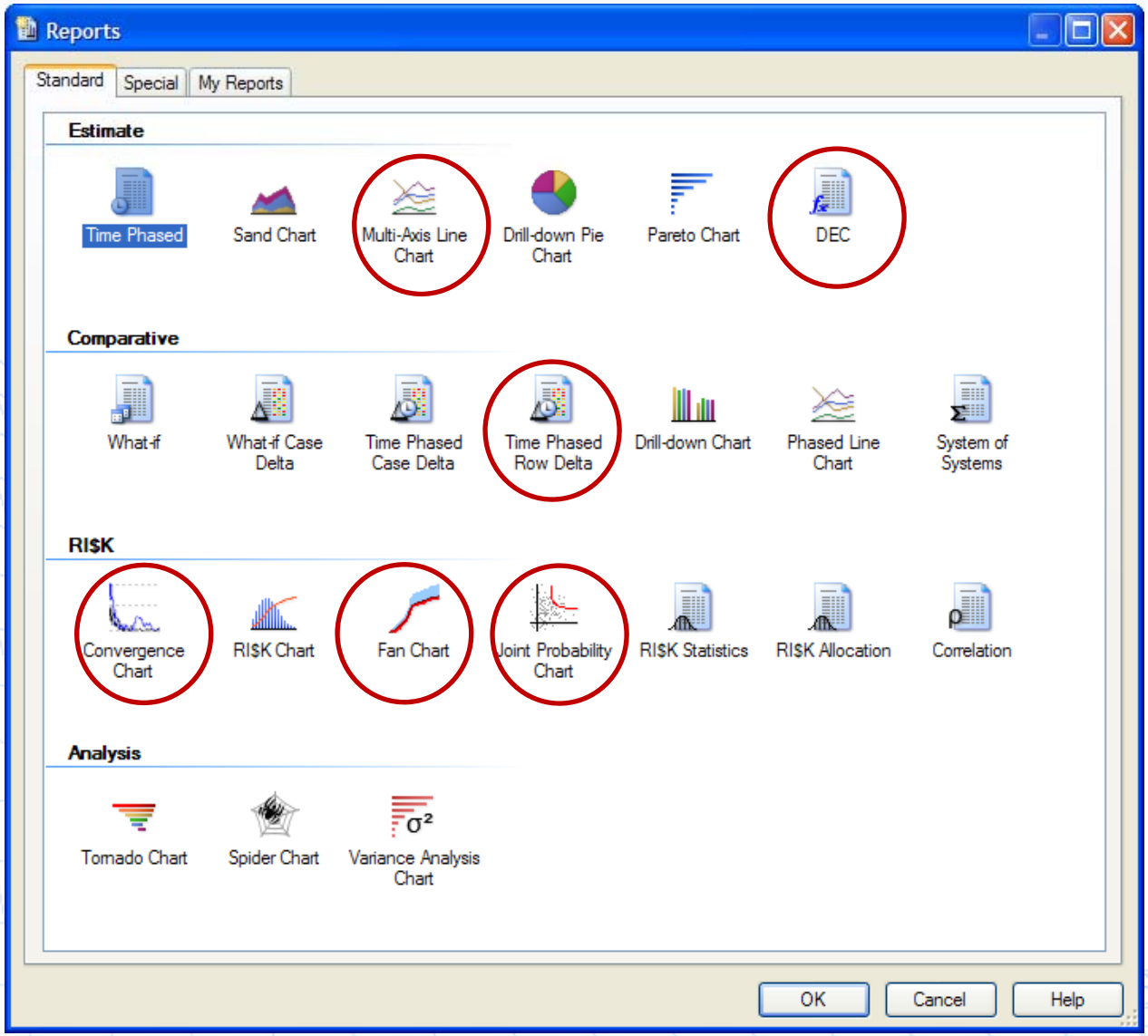
POST New Reports



New in ACEIT 7.2

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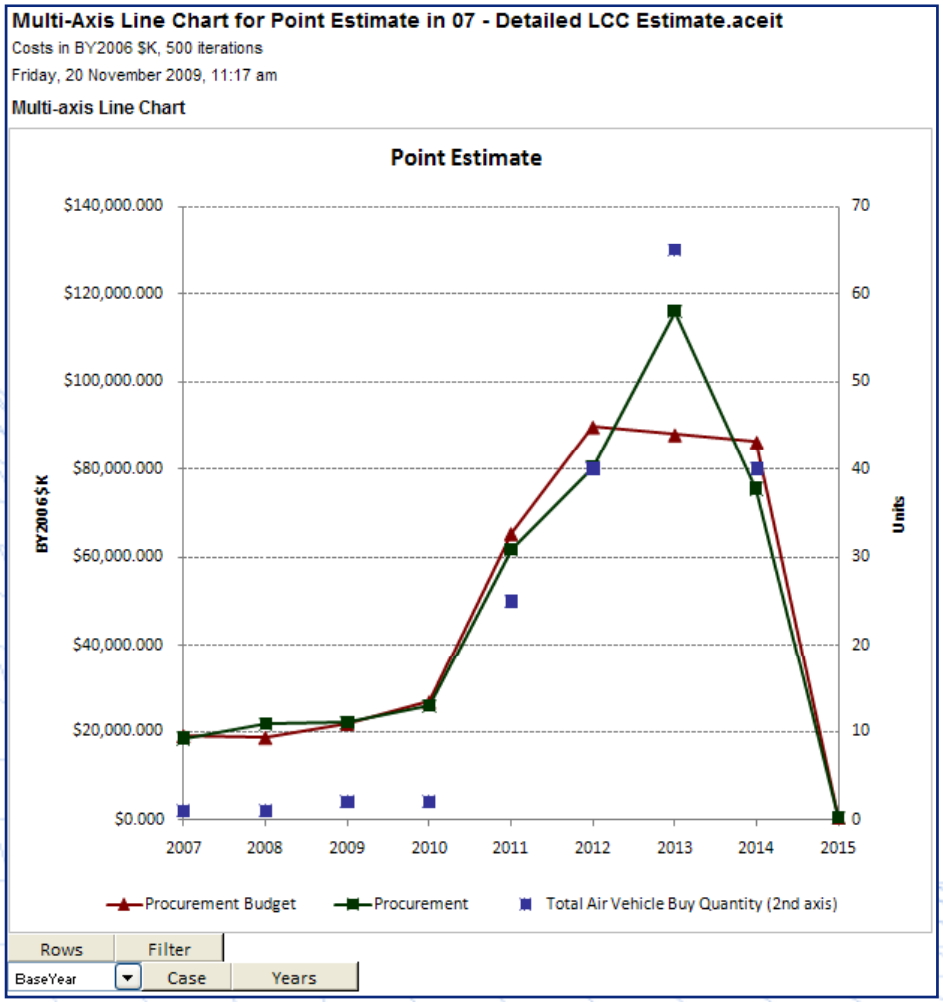
Multi-Axis Line Chart

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



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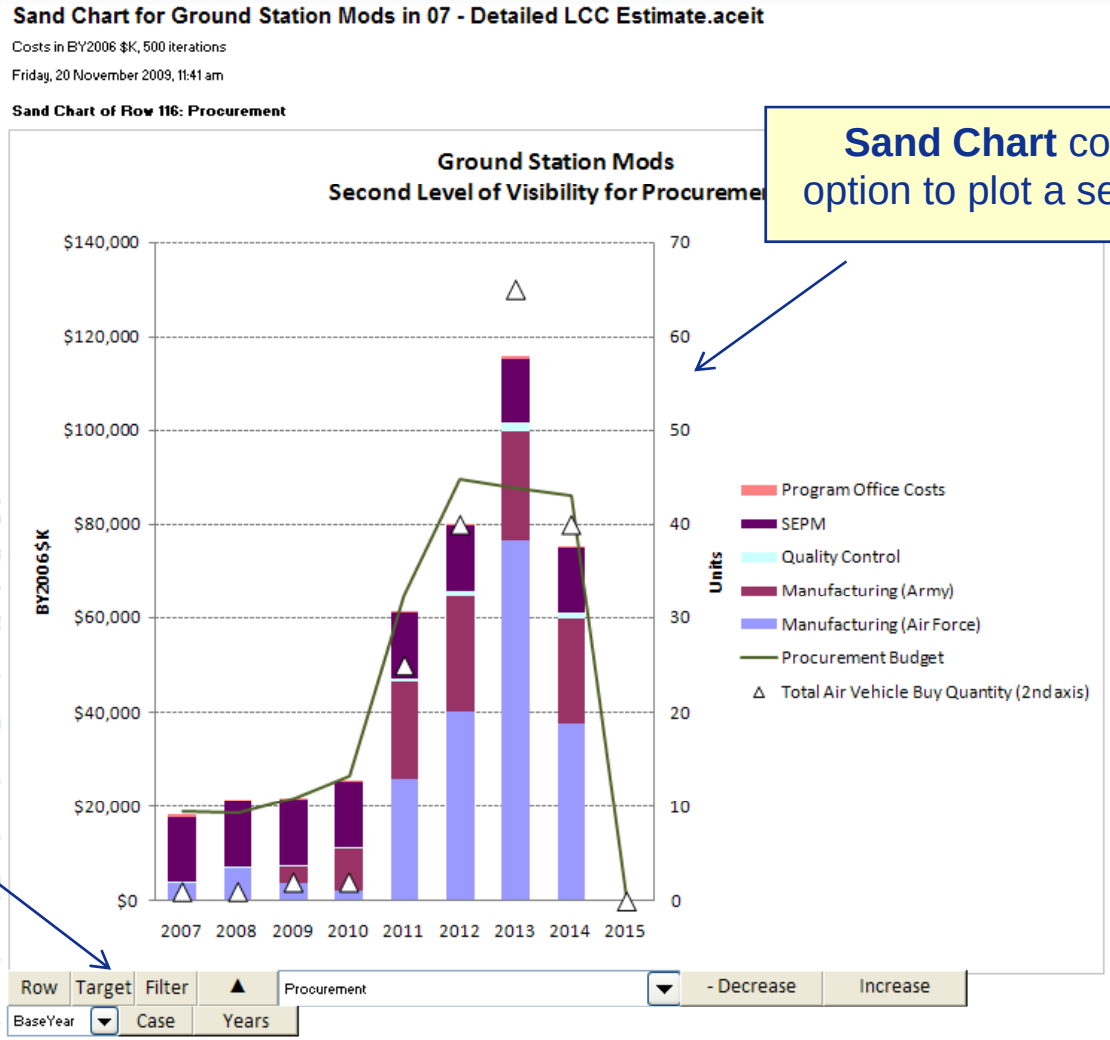
Sand Chart Enhancements



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

Target button for plotting target (budget) row

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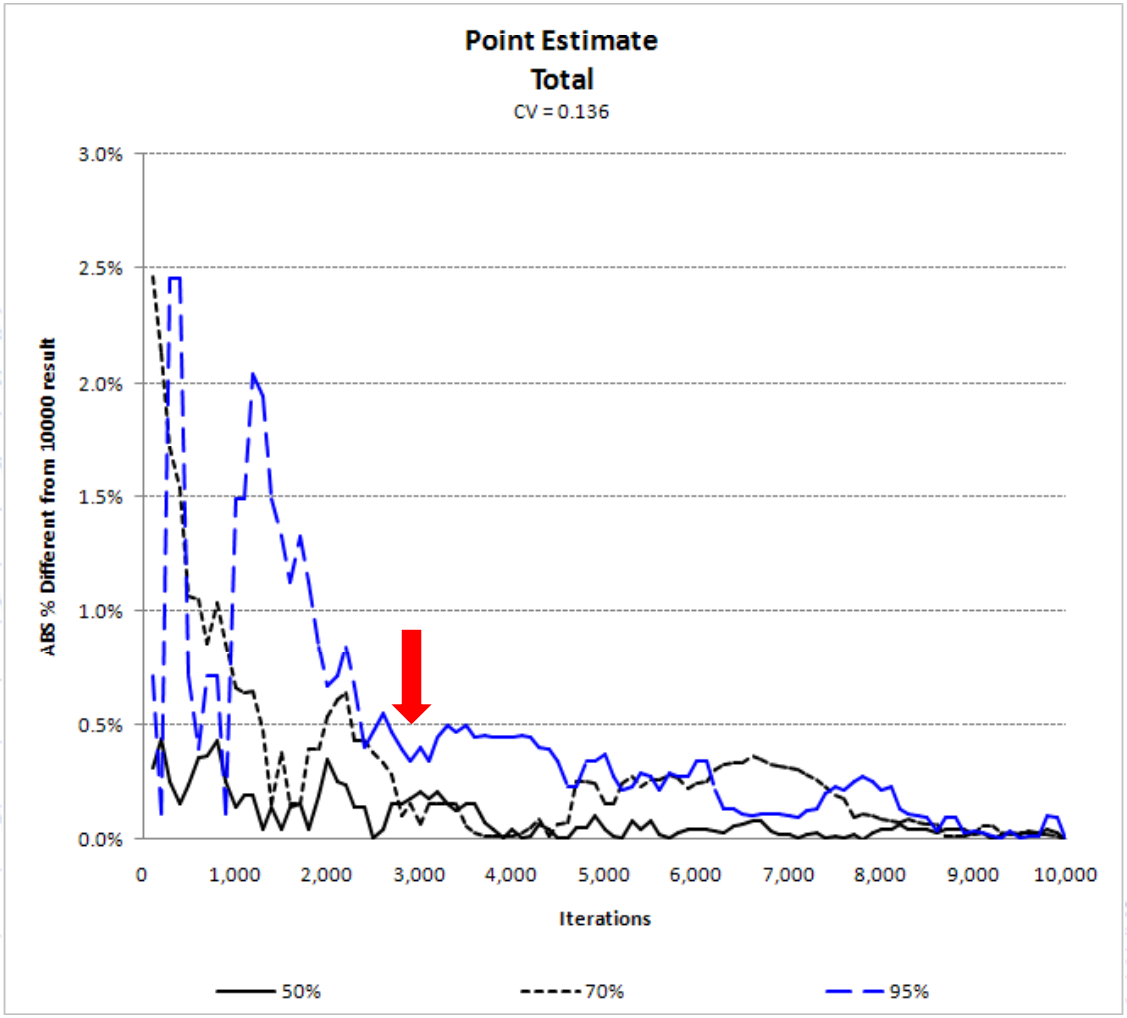
RI$K Convergence Chart

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



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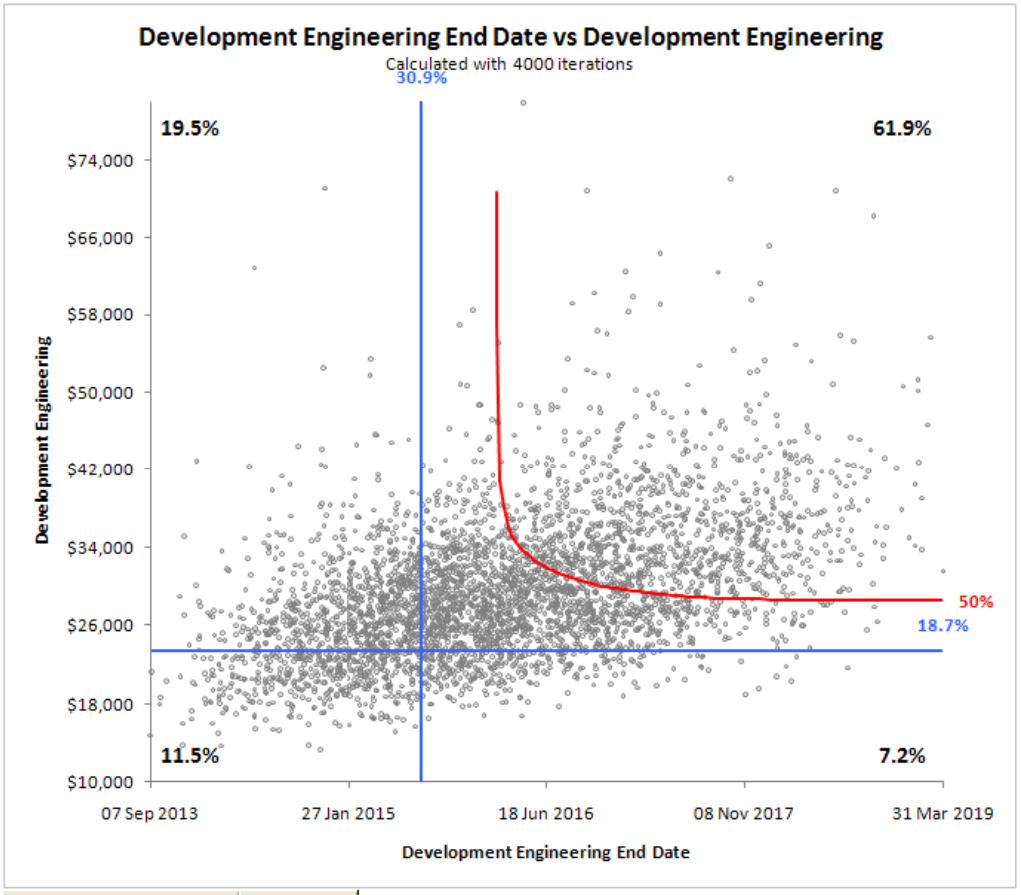
Joint Probability Chart

- 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.

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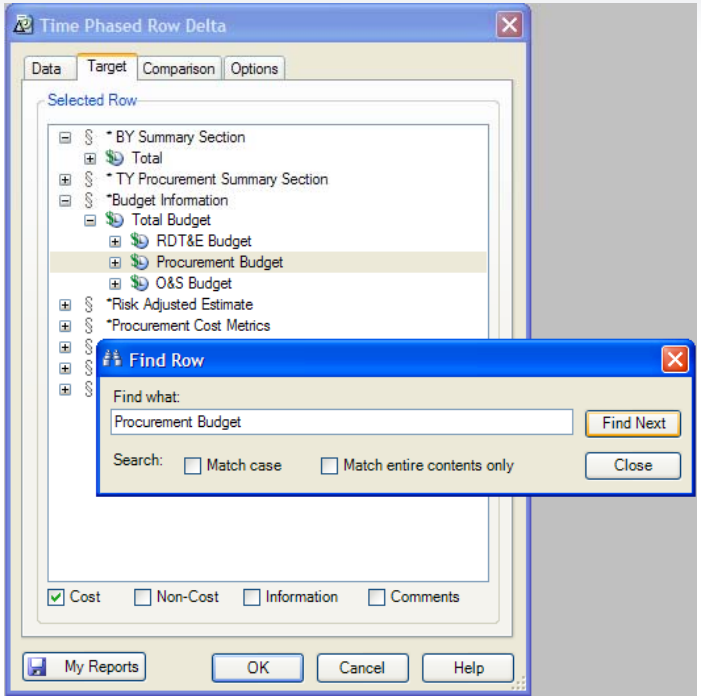
POST 7.2 Enhancements

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

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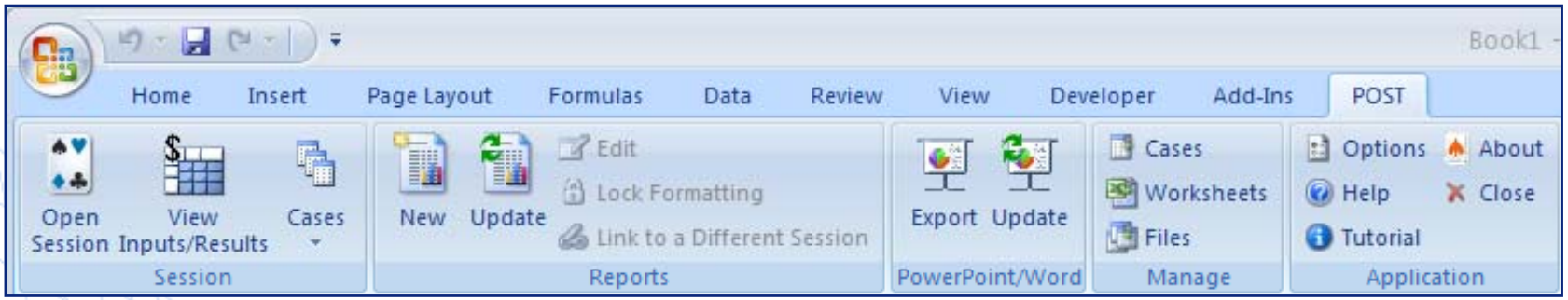
POST 7.2 Enhancements

- 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

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CO$TAT New Features

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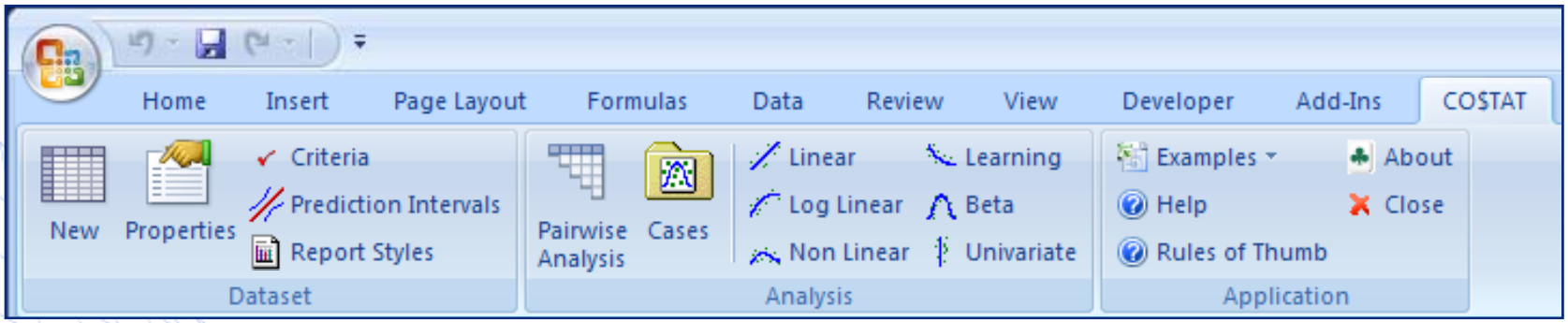
CO$TAT 7.2 Enhancements

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



- Modified CO$TAT to support the new ACE **RI$K 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

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CO$TAT 7.2 Enhancements

- **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.)

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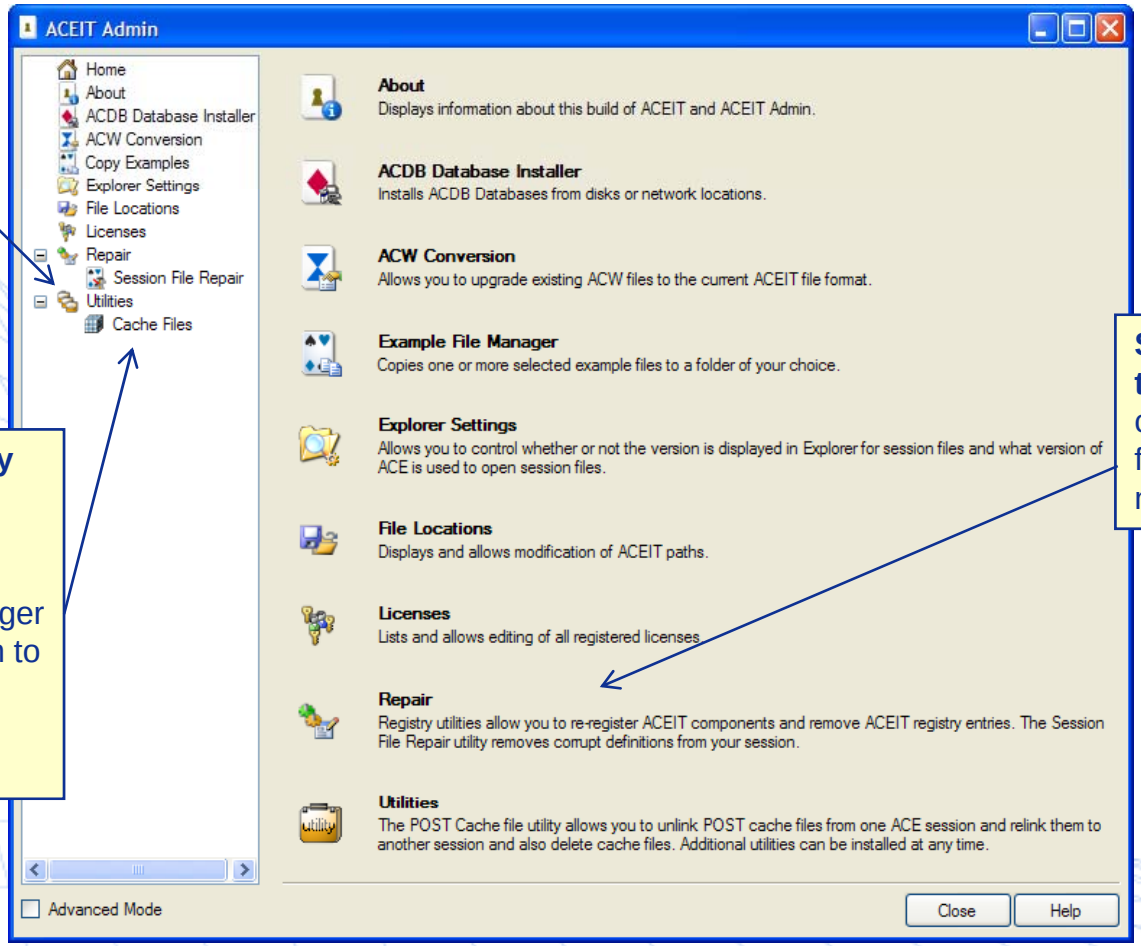
Other ACEIT 7.2 Enhancements

- **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.

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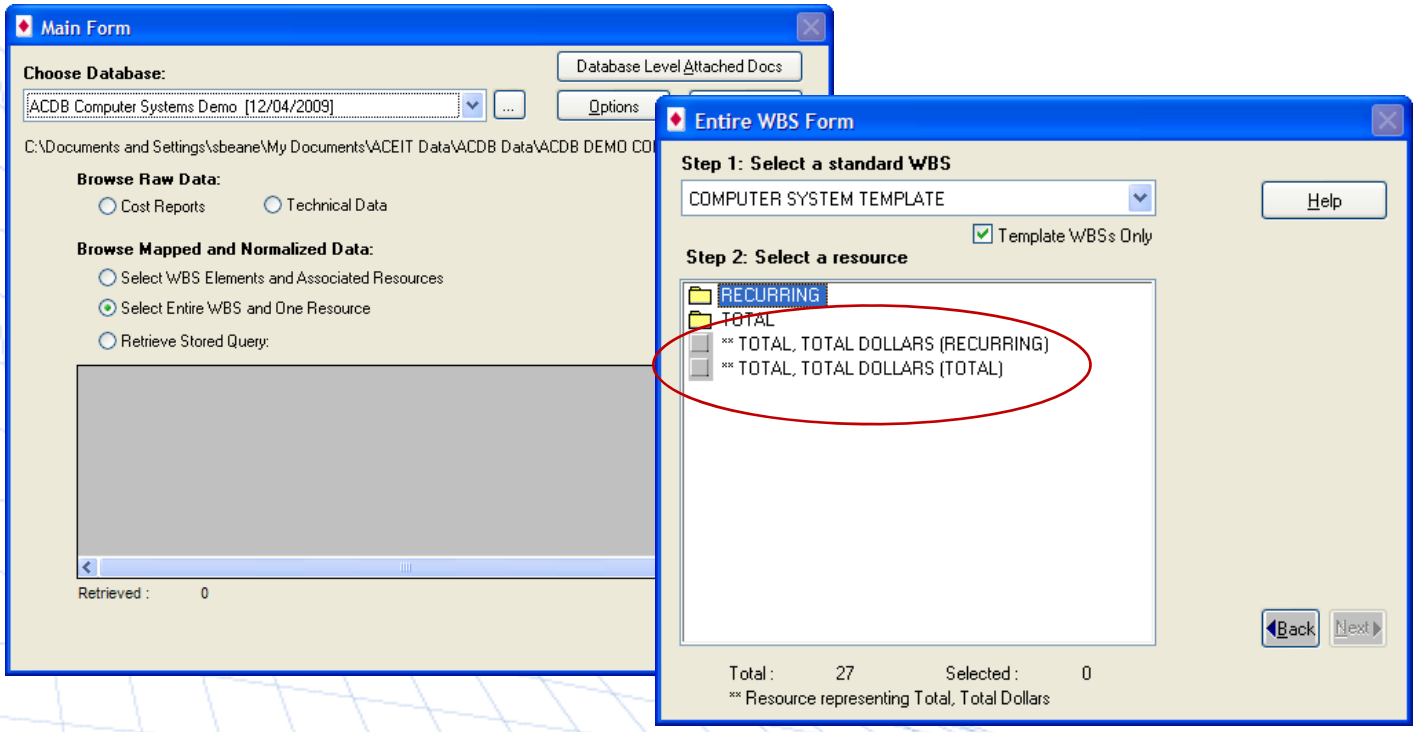
ACDB 7.2 Enhancements

- 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

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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.

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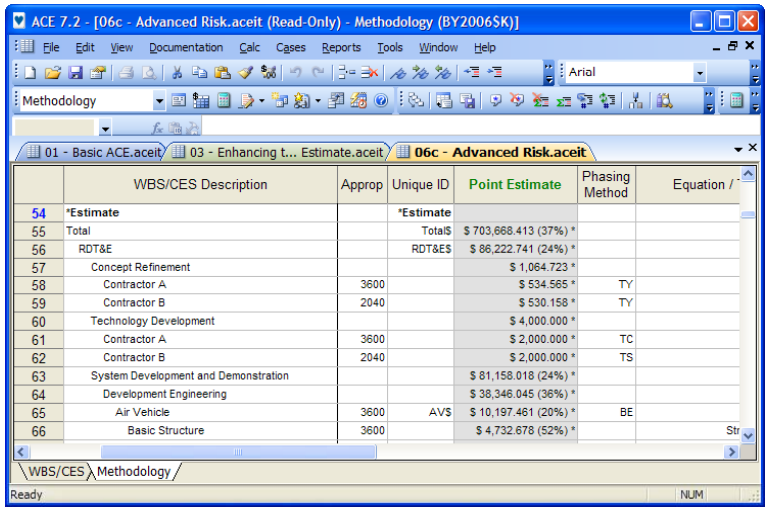
Conclusion

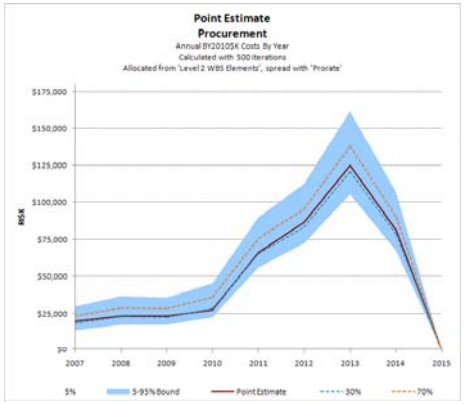
★ ACEIT 7.2 contains hundreds of usability and stability enhancements

- **Key ACE enhancements**
  - Window and Workscreen tabs
  - New functions
  - Inputs/Results Viewer improvements
  - Four new RI$K phasing profiles

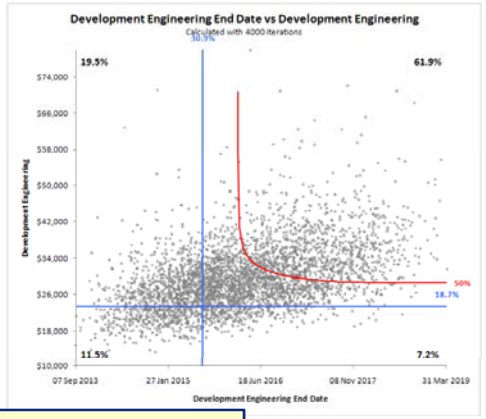


	WBS/CES Description	Approp	Unique ID	Point Estimate	Phasing Method	Equation /
54	*Estimate		*Estimate			
55	Total		Total$	$ 703,668.413 (37%) *		
56	RDT&E		RDT&E$	$ 86,222.741 (24%) *		
57	Concept Refinement			$ 1,064.723 *		
58	Contractor A	3600		$ 534.565 *	TY	
59	Contractor B	2040		$ 530.158 *	TY	
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	AV$	$ 10,197.461 (20%) *	BE	
66	Basic Structure	3600		$ 4,732.678 (52%) *		Str

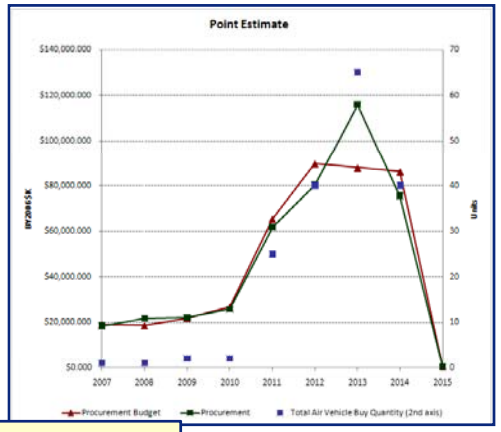
- **New POST reports**



Fan Chart



Joint Probability Chart



Multi-axis Line Chart

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The End

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Backup

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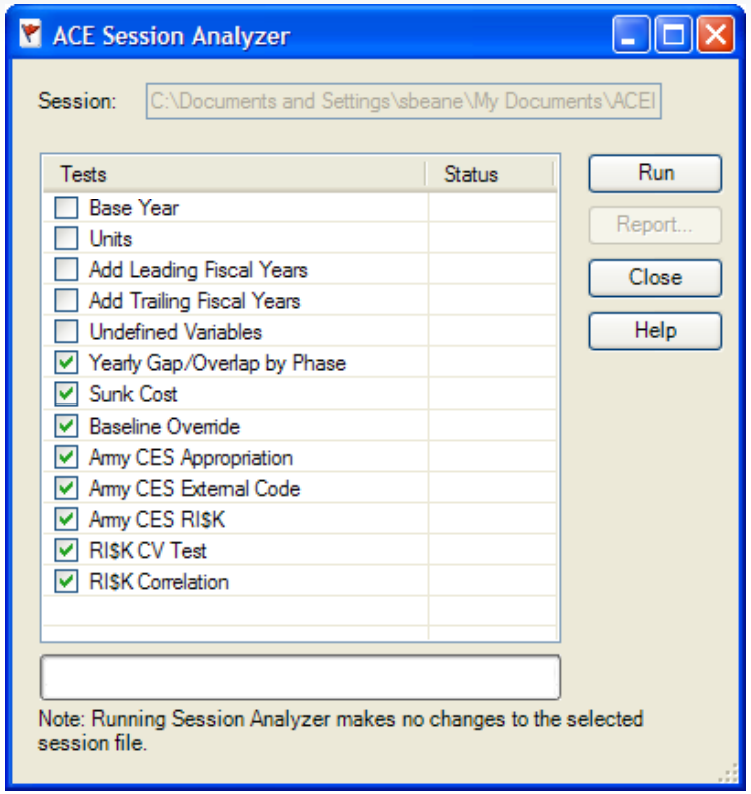
New Session Analyzer Tests

- **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%.
  - RI$K Coefficient of Variation test flags WBS level 1 and 2 rows with CV<.1 or CV>.5
  - RI$K Correlation checks for correlation within the estimate and input variables. This is a session, not a row level test.

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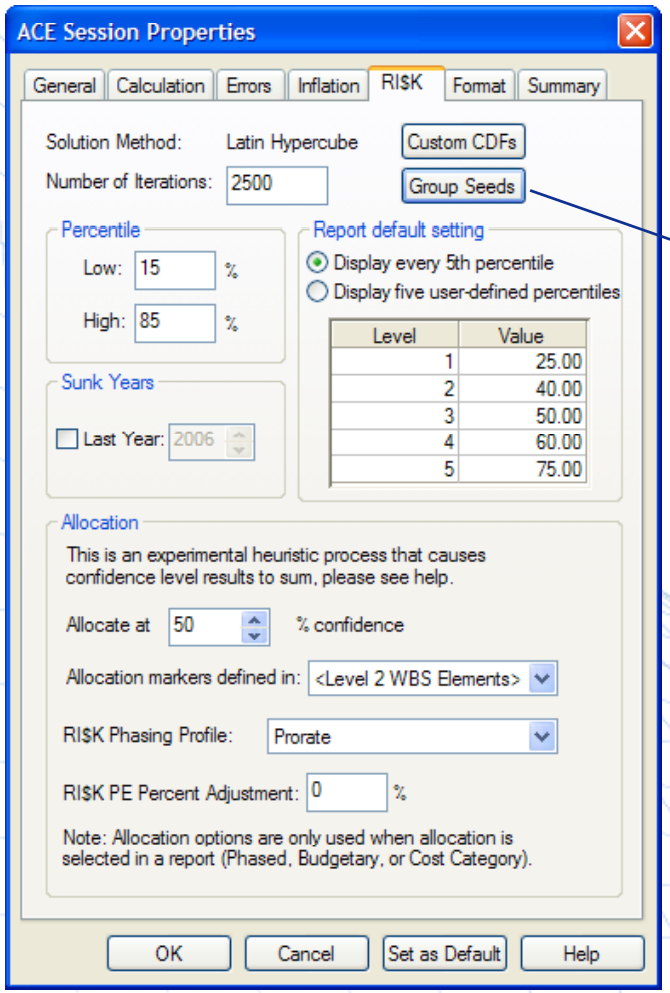
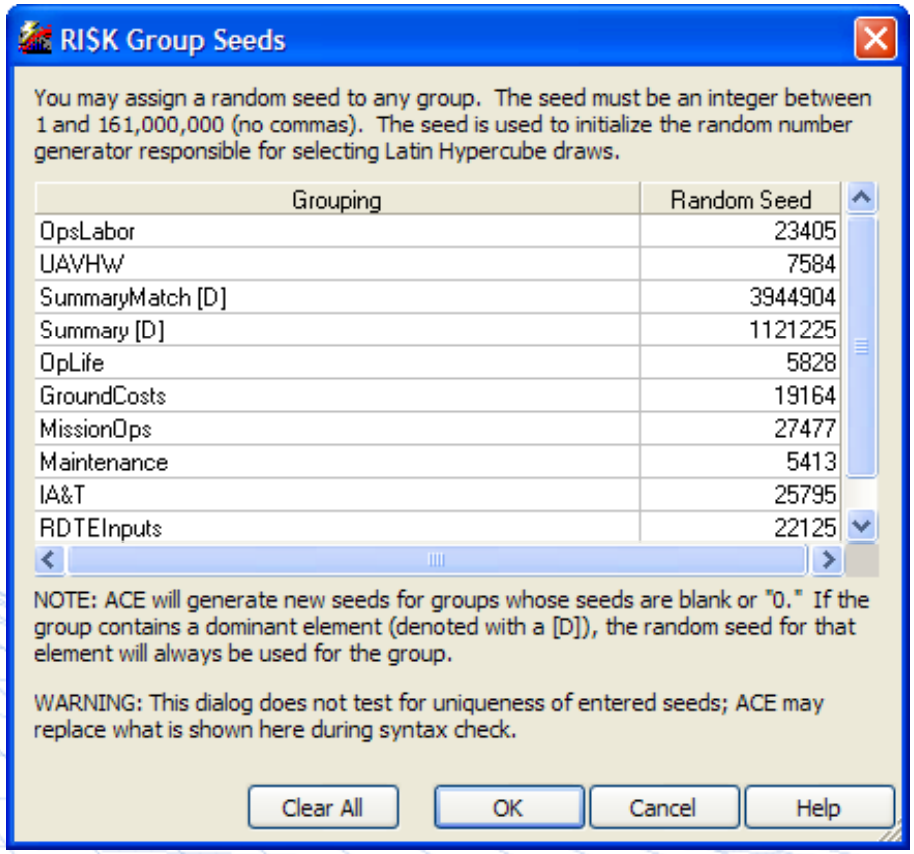
ACE 7.2 RI$K Enhancements

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.





06c - Advanced Risk.aceit session

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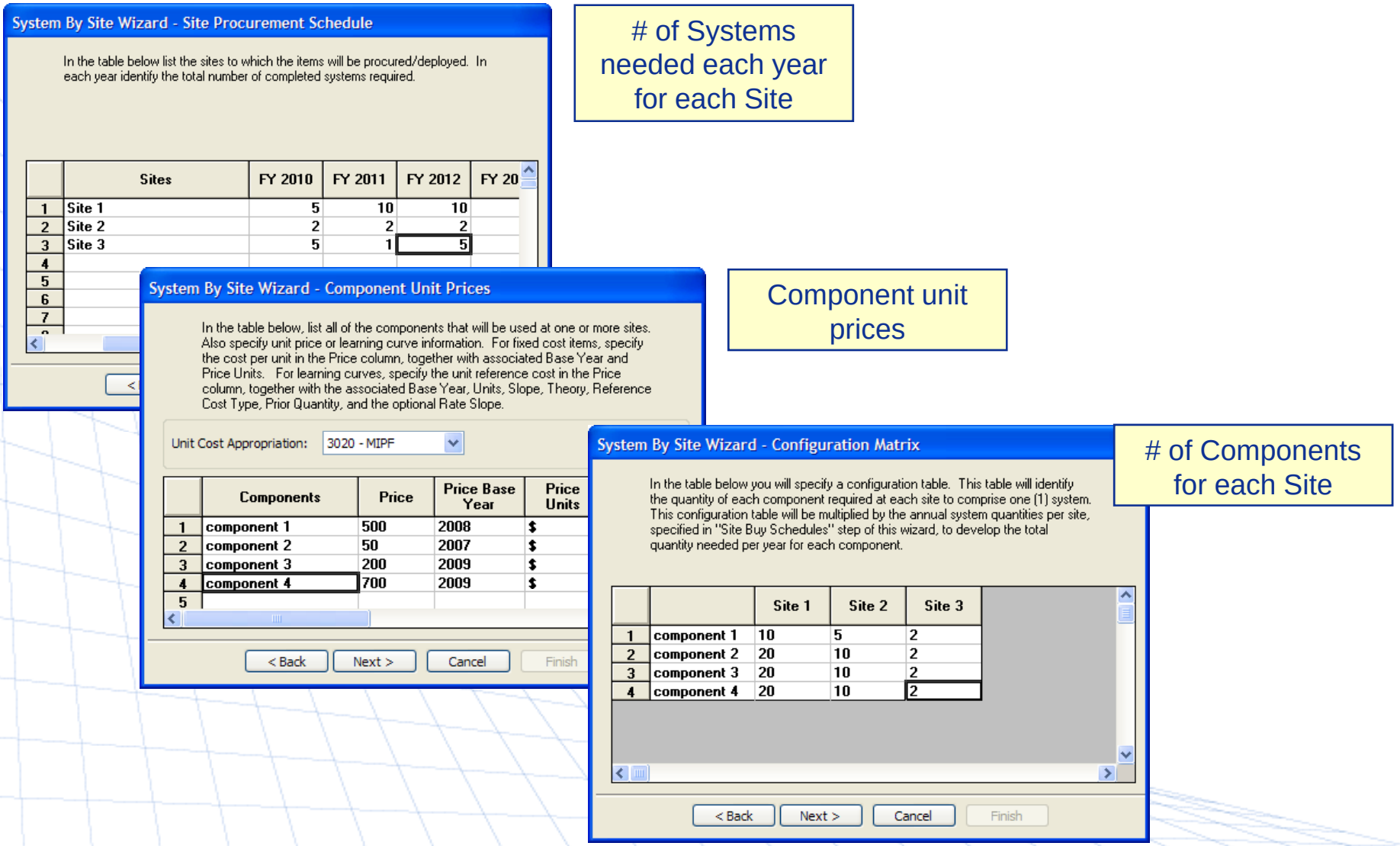
System by Site Wizard



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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
- Site 2 Component Cost
- Site 3 Component Cost

	WBS/CES Description	Total	FY 2009	FY 2010	FY 2011	FY 2012
15	ABC Site Number for Subsystem Cost	1.				
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
- Site 2 Component Cost
- Site 3 Component Cost

	WBS/CES Description	Total	FY 2009	FY 2010	FY 2011	FY 2012
15	ABC Site Number for Subsystem Cost	2.				
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
- Site 2 Component Cost
- Site 3 Component Cost

	WBS/CES Description	Total	FY 2009	FY 2010	FY 2011	FY 2012
15	ABC Site Number for Subsystem Cost	3.				
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

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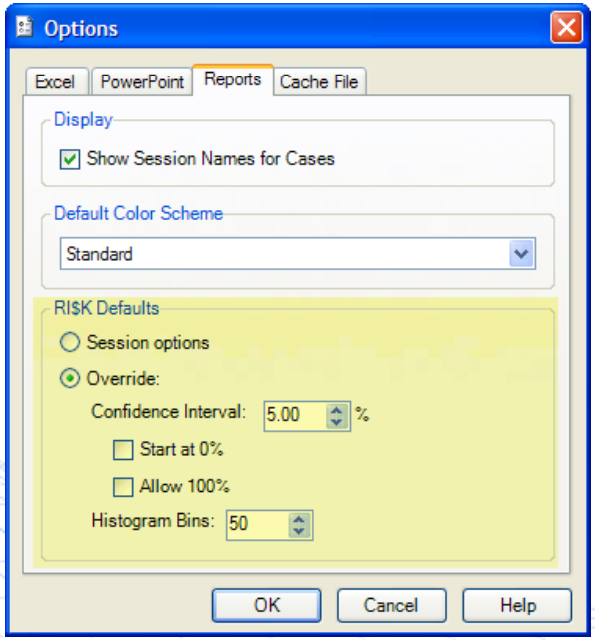
POST 7.2 Enhancements

- **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 RI$K S-curve chart and as an option to report on the chart.
- Increased the number of **selectable risk plot points to four** (e.g. 50%, mean, 60%, 80%) on the RI$K S-curve chart.
- Added a section for **RI$K Defaults** to the **POST>Options Reports** tab.
  This allows the user to set the default for RI$K reports for ALL sessions, not just the open session.



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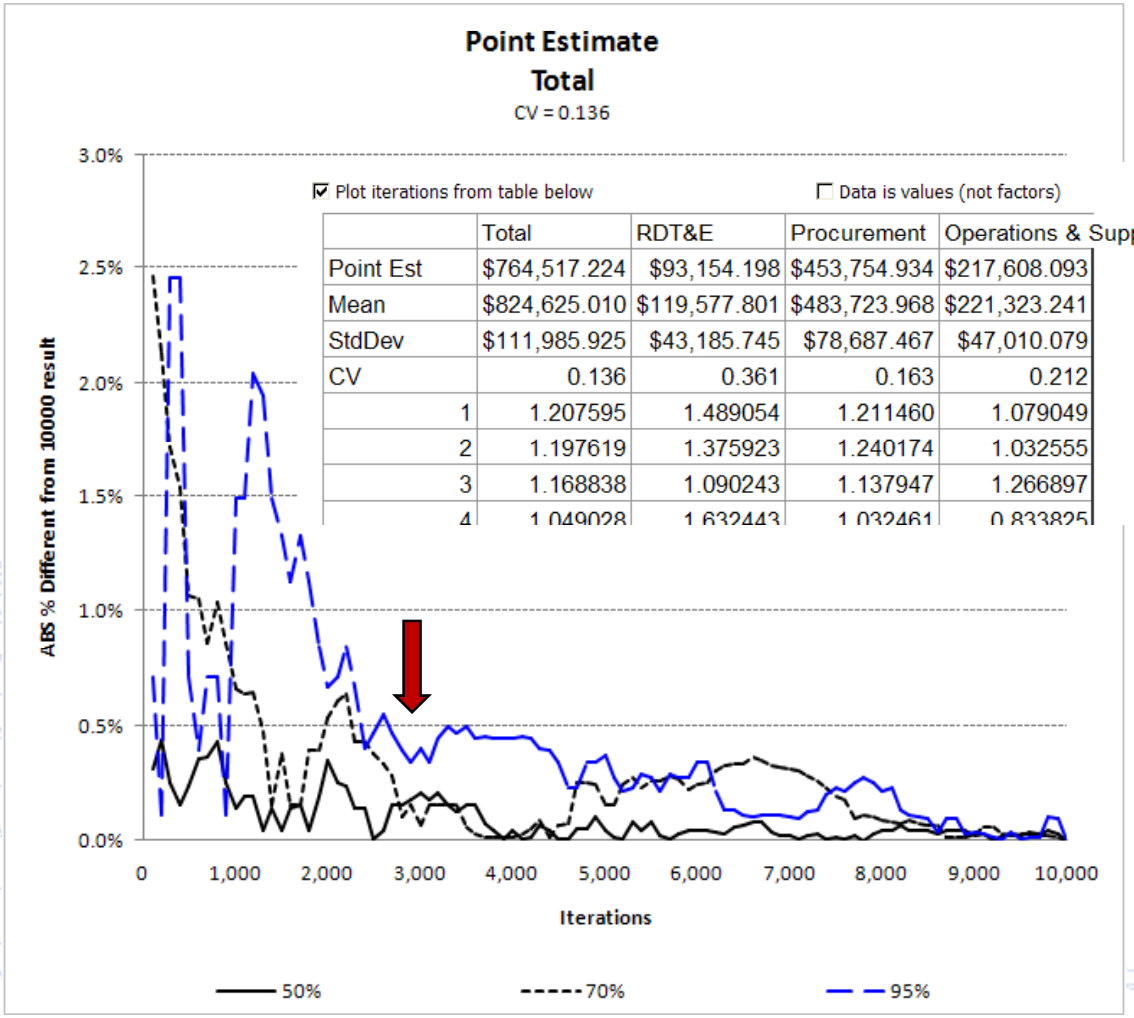
RI$K Convergence Chart

- 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



	Total	RDT&E	Procurement	Operations & Support
Point Est	$764,517.224	$93,154.198	$453,754.934	$217,608.093
Mean	$824,625.010	$119,577.801	$483,723.968	$221,323.241
StdDev	$111,985.925	$43,185.745	$78,687.467	$47,010.079
CV	0.136	0.361	0.163	0.212
1	1.207595	1.489054	1.211460	1.079049
2	1.197619	1.375923	1.240174	1.032555
3	1.168838	1.090243	1.137947	1.266897
4	1.049028	1.632443	1.032461	0.833825

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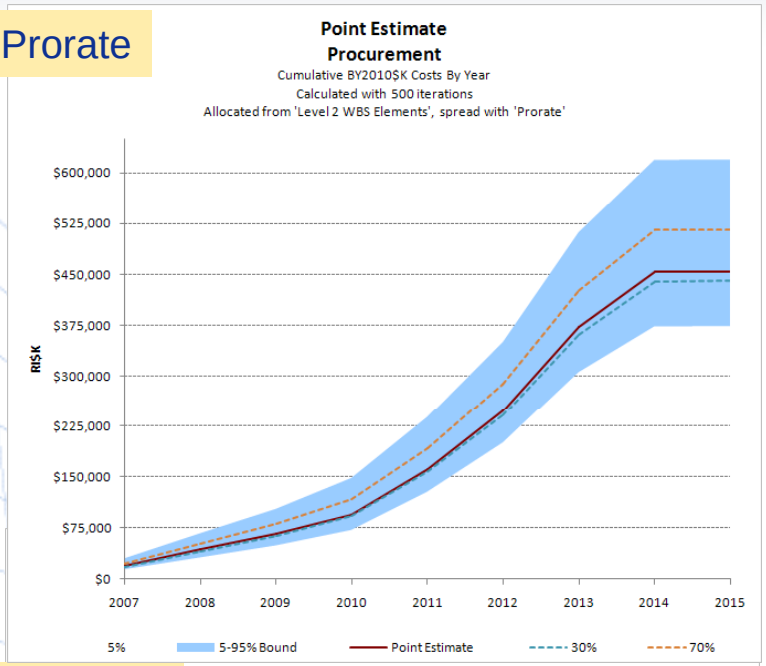
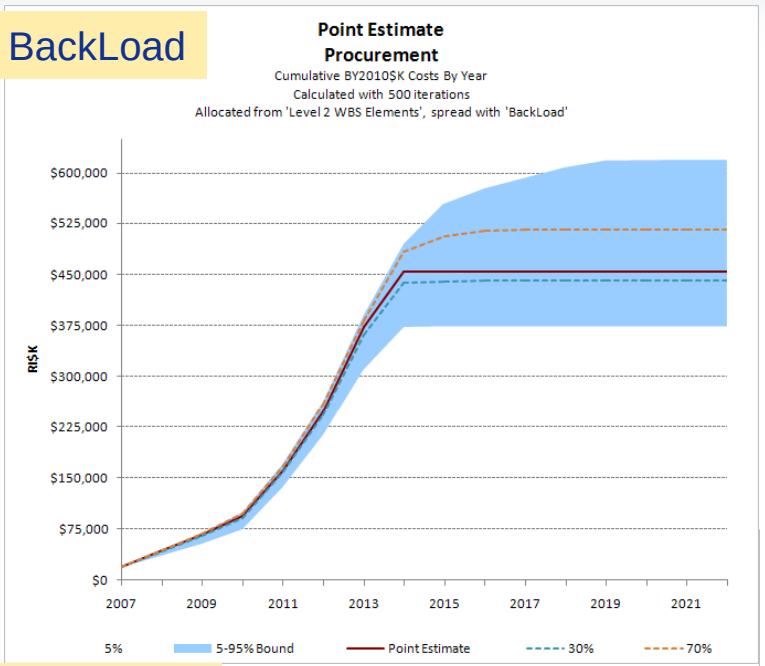
RI$K Cumulative Fan Chart

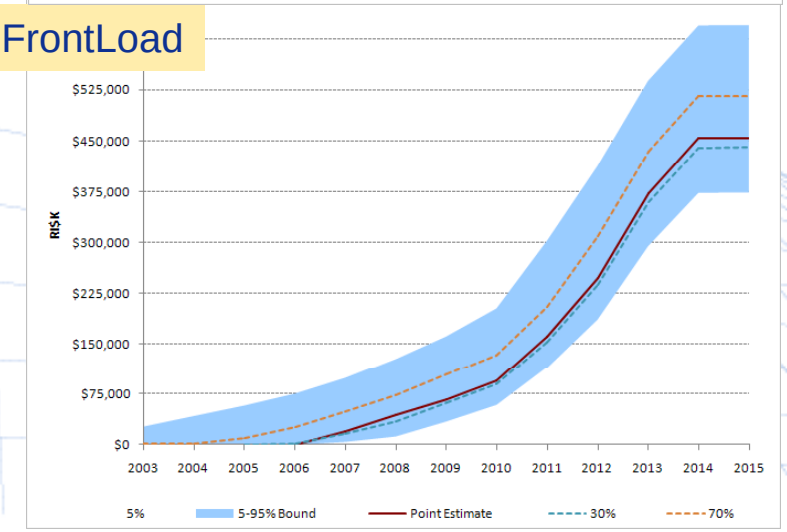
Prorate



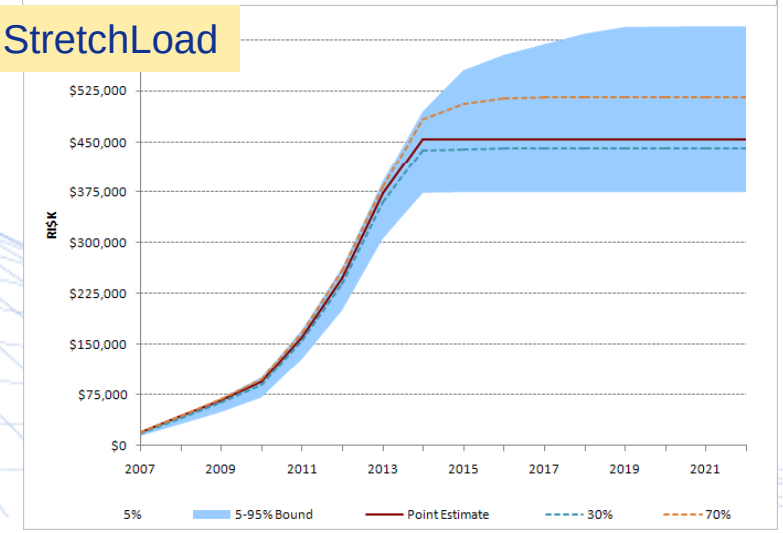
BackLoad



FrontLoad



StretchLoad



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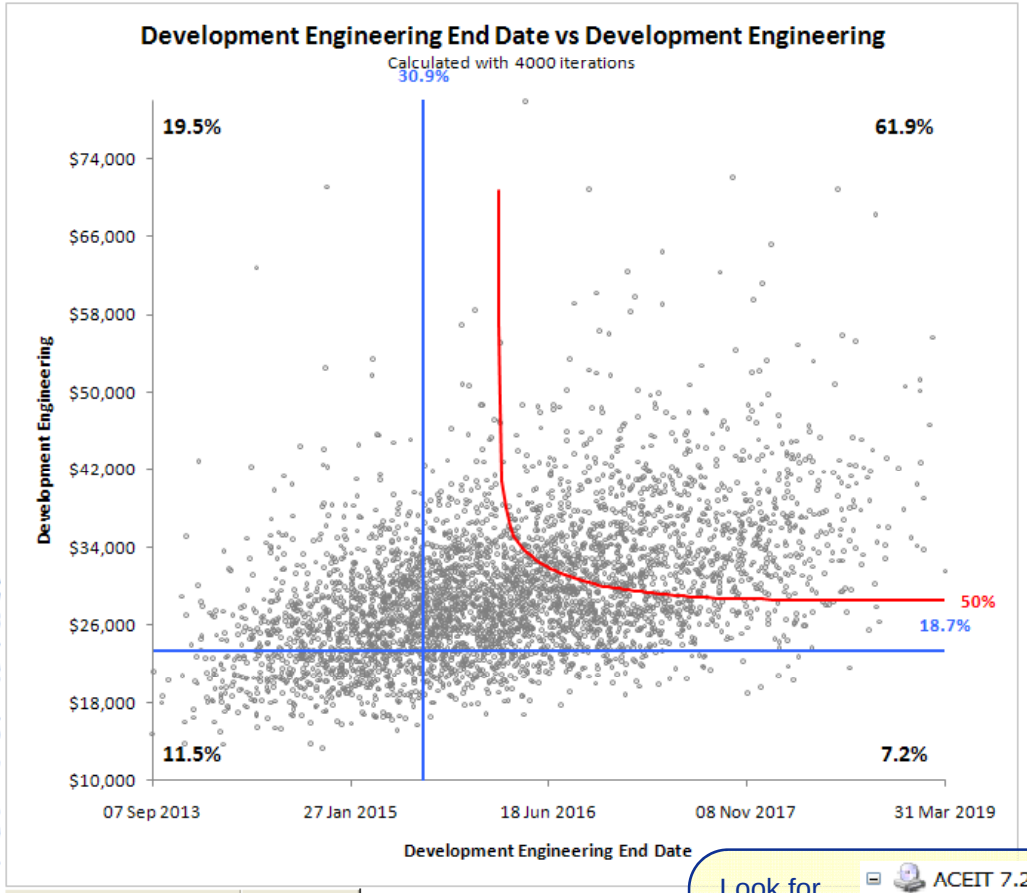
Joint Probability Chart

- 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	[illegible]	01 Mar 2016

Use left/right arrows to move the vertical bar.

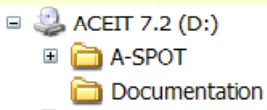
Use up/down arrows to move the horizontal bar.

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.

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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.

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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.

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