

The Mystery of Earned Value - An Oil & Gas Owner's Perspective

BG GROUP



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What we are going to cover

- Cost and progress reporting before --- Earned Value
- Why progress and cost curves do not tell the whole picture
- The results of high-quality Earned Value management
- Telling the future with Earned Value
- Earned Value and Contractors
- Why Earned Value Fails, the pitfalls

Life before Earned Value

- VOWD – Value of Work Done
 - Estimated percent complete times EAC
 - Estimated percent complete times the budget
 - Estimated cost (value) of work completed

- VOWD provided to Finance
 - VOWD minus “booked” costs = accrual value

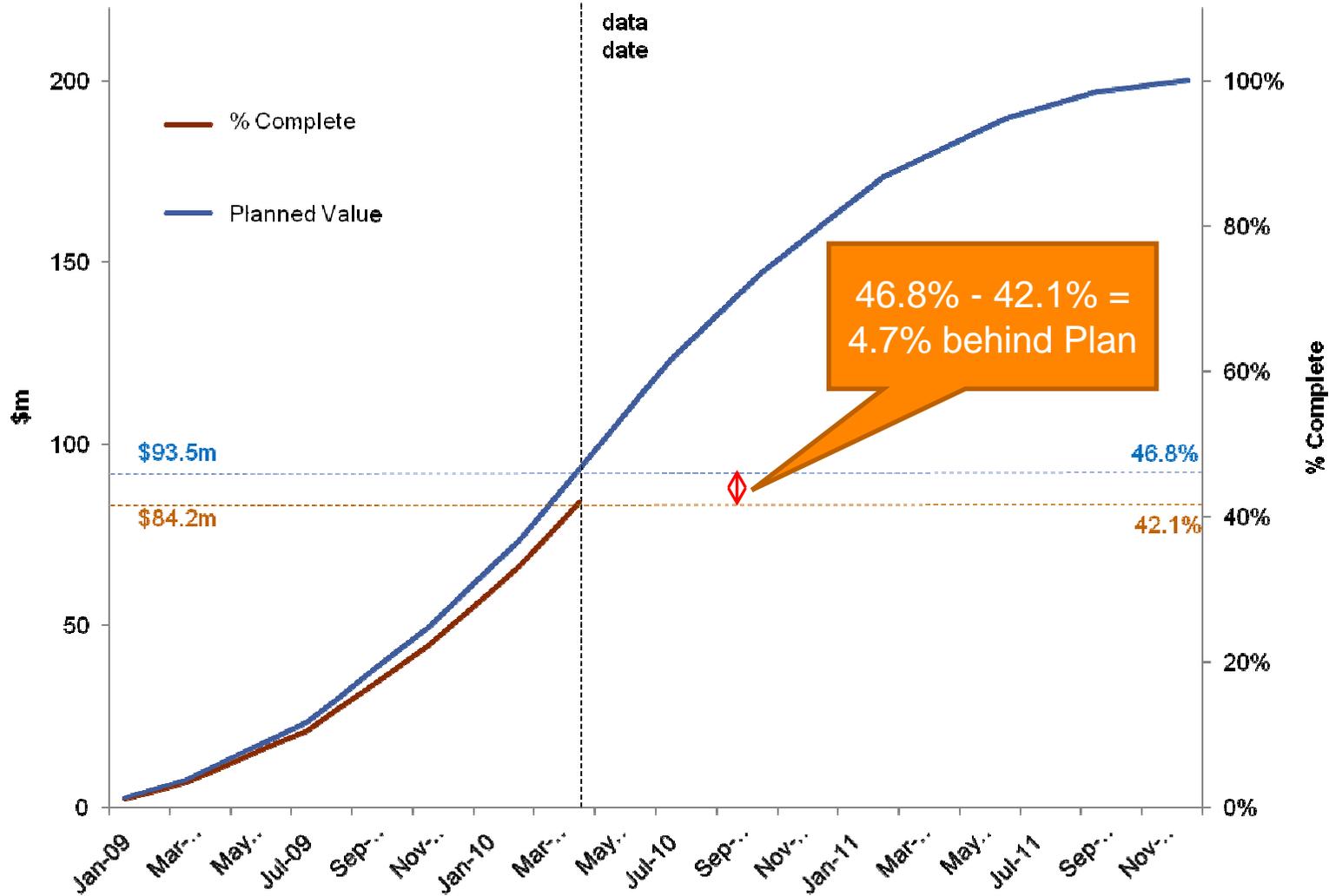
Why progress curves don't tell us the whole picture

- Compares planned with actual progress, percent complete
- A couple of percent early in a project, should we be concerned?
- Does not provide actual cost information
- Prepared by Planning/Scheduling

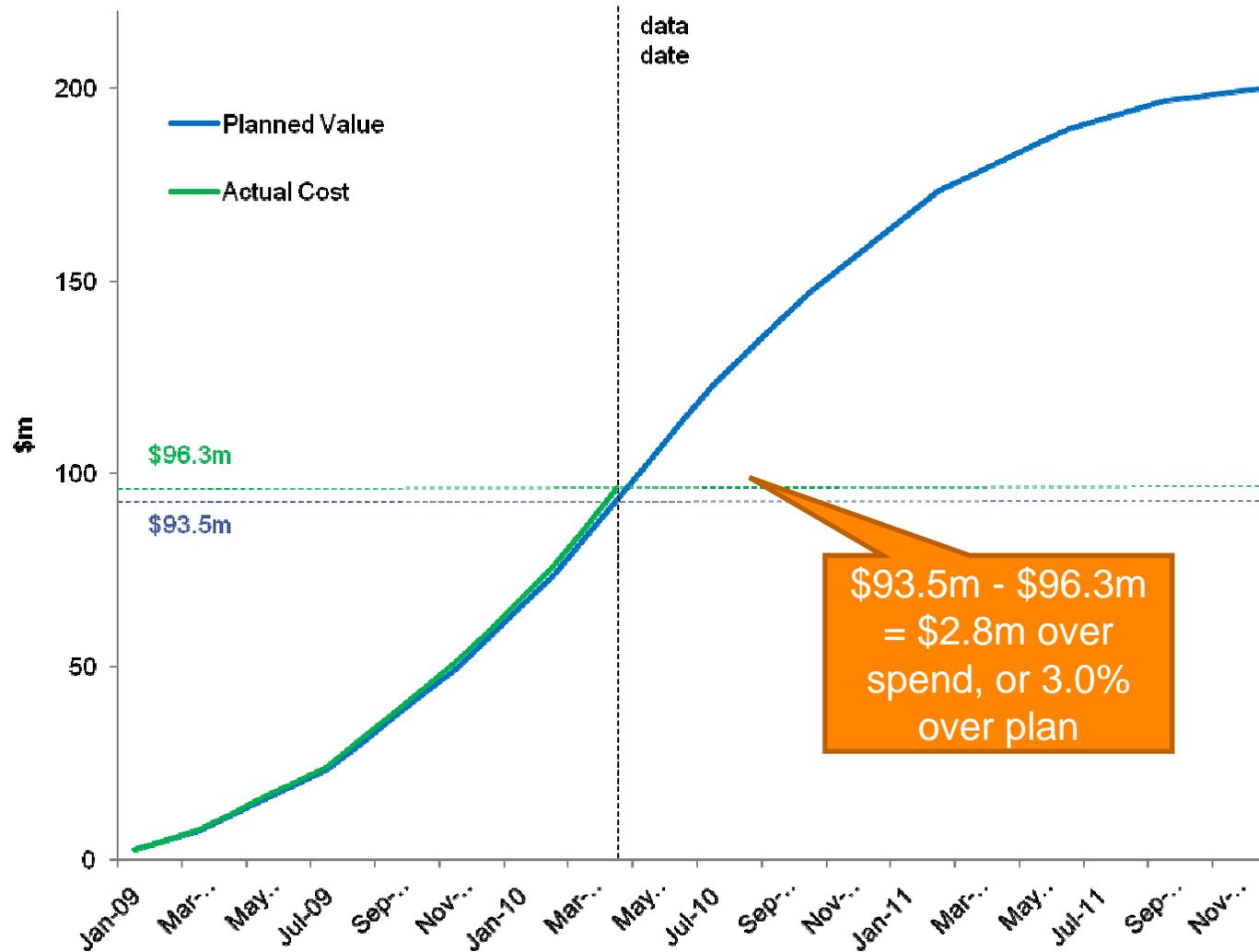
Why cost curves don't tell us the whole picture

- Compares planned cost with actual costs (spend variance)
- Does not provide physical progress information
- If the schedule is accelerated or delayed, cost forecasts may not be accurate
- Done by Cost Engineers

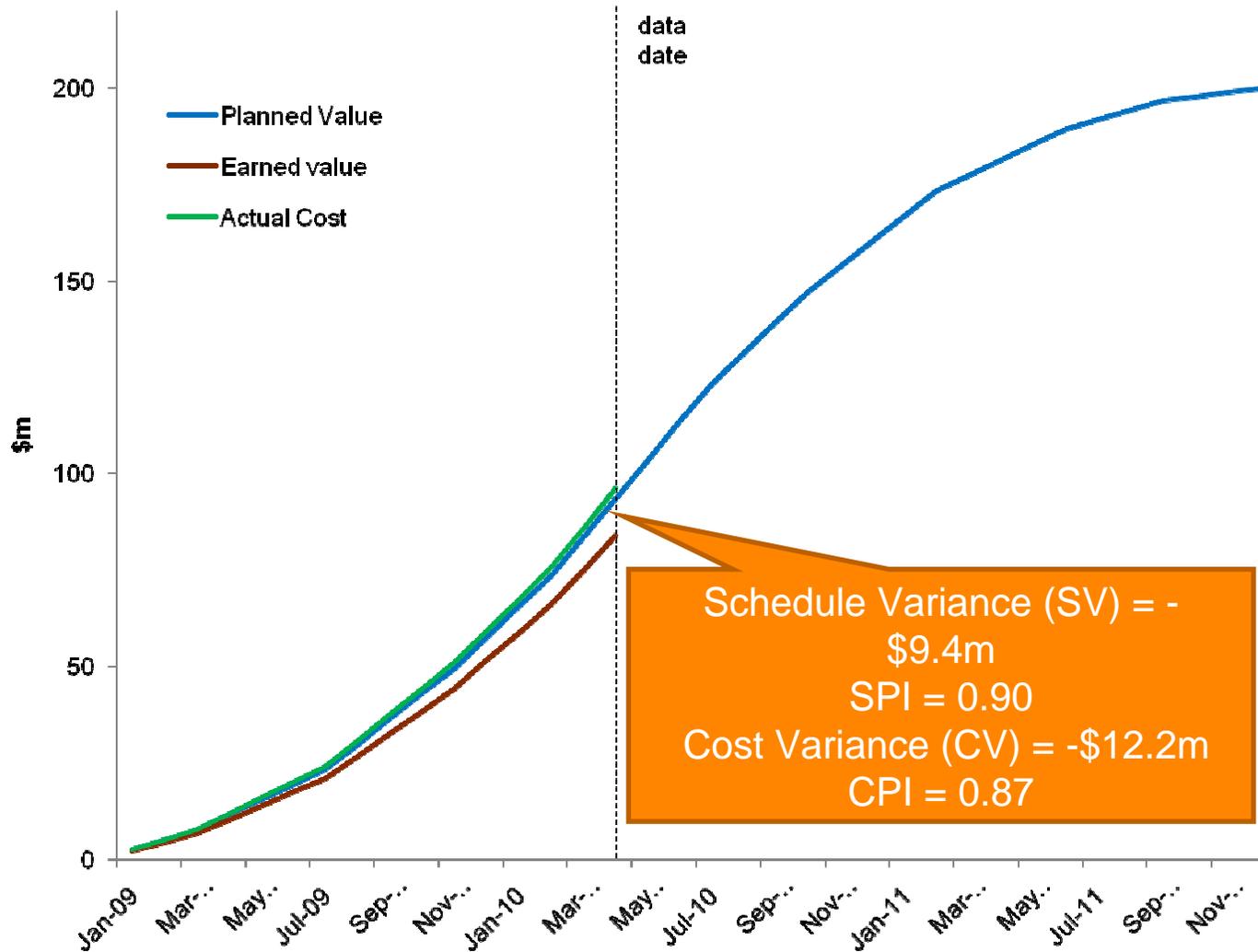
Progress Curve



Cost Curve



Earned Value Curve



The results of high-quality Earned Value management

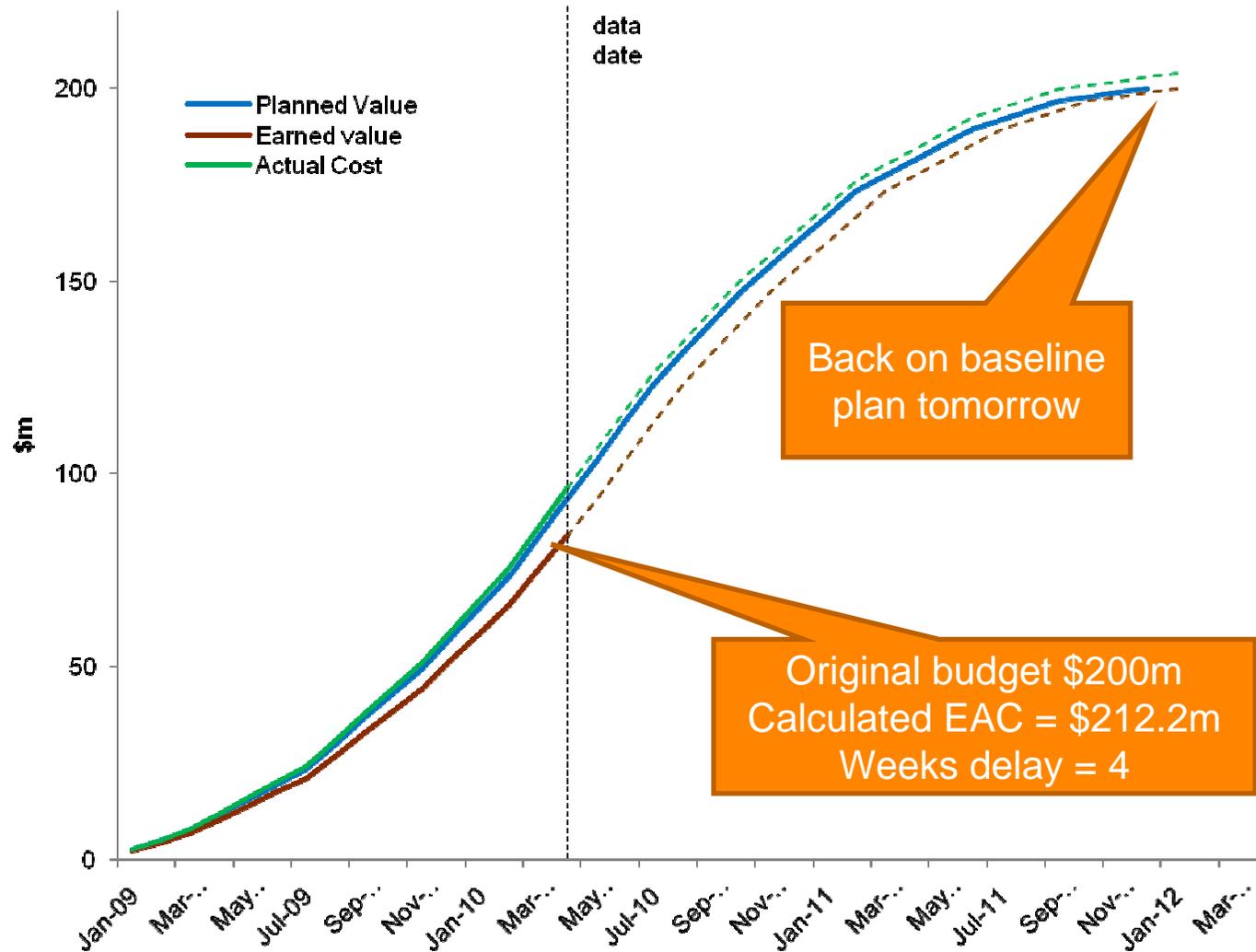
- Predictability of outcomes, final cost and completion date
- Current project performance, Productivity and Efficiency (SPI, CPI)
- What areas of the project are driving my current performance (WBS)
- Who is driving my current performance (CAM)

Telling the future with Earned Value

- There are two easy forecasting methods using current Earned value data
 - Take the current variance values and adding to the end of the plan curve
 - Not overly realistic, as this method assumes all future performance will be equal to the remaining plan – Tomorrow is the Miracle Day!
 - Take the current SPI (time) and CPI (cost) and calculate the an EAC and schedule delay based on current performance trends
 - Reasonably accurate if the project is between 20% and 85% complete with no mitigating actions are taken

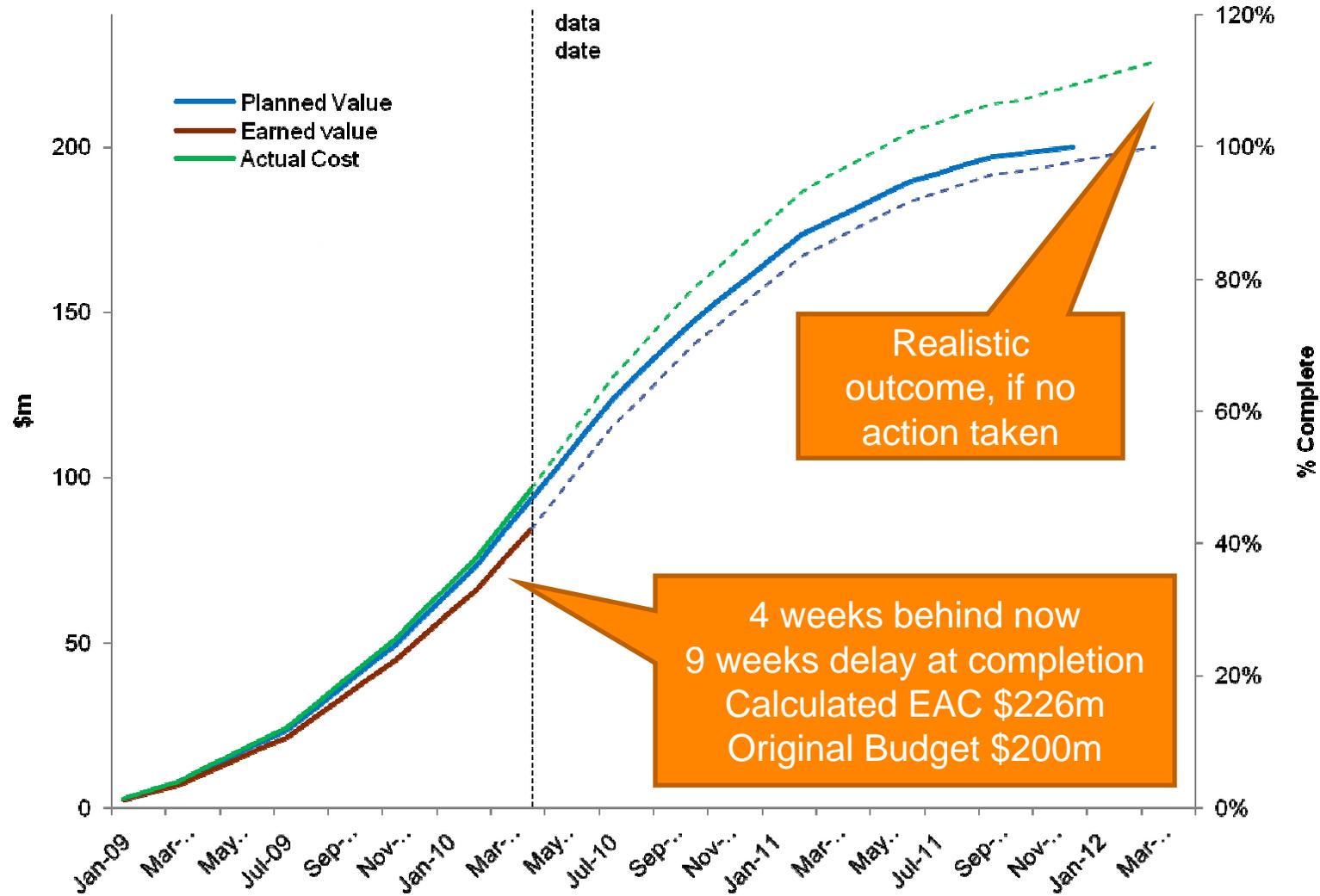
Earned Value Curve

Forecast based on current variance



Earned Value Curve

Forecast based on current variance trends



A little more on forecasting

- The above forecasting techniques are not as accurate for projects with considerable acceleration and/or substantial budget underruns
- Earned Value data can be viewed, analysed, and forecasted at all levels of the WBS, OBS, Contracts, or funds type
 - Caveat – integrated cost and schedule data, and earned value must be available

Earned Value and the Contract Types

- Fixed price or lump sum contracts, well defined scope
 - Cost variance will always be 0, with a $CPI = 1.0$, as the contractor does not report actual costs
 - EV is “pegged” to accomplishment/completion of milestones, sometime referred to as “pay points”
 - EV is determined by the predetermined (negotiated) value applied to each pay point milestone
- Cost reimbursable contracts, scope is not well defined (higher cost risk to Owner)
 - EV based on pre-determined methods are calculated from the contract Performance Measurement Baseline (time phased budget), for work accomplished, with actual costs applied
 - Both SV (SPI) and CV (CPI) are calculated

Earned Value and Contractors

- Most large Engineering, Construction, and Project Management contractors have the knowledge and capability to effectively use and report earned value information
- Contractor's data must be reported and aligned with Owner's WBS
 - Reports must be structured to provide detailed EV information one WBS level below the required Owner's reporting level (i.e. if the required to report at level 3, reports would have the details at level 4 and summarised to level 3)
 - Contractor's may develop a CWBS (Contractor's Work Breakdown Structure), such a structure must "map" to Owner's WBS
 - Contractor reporting "cut-off" dates and reporting dates should (where possible) support Owner's month-end, reporting cut-off dates
 - Owner's may be required to estimate EV progress and accrual cuts for the time period between the contractor's and Owner's cut-off dates

What does it take to make Earned Value work well?

- Managers that want EVMS, and manage their project using Earned Value
 - Recognises EV as a management tool not just a reporting requirement
- Cost Engineering, Planner/Scheduling, and Finance working together
- A well defined Scope baseline, aligned with a well structured WBS
- A disciplined Change Control process
- A suite of software tools and systems that sustainable for calculating timely and accurate data

How does CPM Scheduling and Earned Value work together?

- Earned Value data does tell you if the project is doing the right value of work, and if the project is performing within planned budget
- Earned Value can be used to forecast both end costs (EAC) and potential delays in projects (due to low productivity)
- CPM Scheduling provides a view of - if the “right” or “critical” work is being performed
- Forecasting a project’s completion date by analysing CPM and EV data together provides superior forecast – the whole picture
- PREDICTABILITY

Why does the Implementation of EVMS Fail? The Pitfalls

- Lack of top management support (usage), no one really cares
- Lack of knowledge, how to effectively use EVMS
- Inability to change workplace cultures (project managers, cost engineers, planning/scheduling, finance)
- When the project is > 85% complete
- Lack of a robust and disciplined change control process/system

The Number One Project's Fail --

Poor Scope Definition!

THANK YOU!!!

Questions?

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