Pacific Gas and Electric Company®

Detailed Business Case Framework

Enterprise Mobile Program

Release 1 & 2

Version 08

Helen Burt, Executive Sponsor
Shelly Sharp, Business Owner
Redacted

TABLE OF CONTENTS

1. Executive Summary

Project Name: Enterprise Mobile Program	**Project Number (WBS#): P.02771**
Project Team Lead: Dave Morris (Customer Care) and Alain Erdozaincy (ISTS)	**Project Sponsors:** Pat Lawicki, Helen Burt, Geisha Williams, Ed Salas, Des Bell
Gated Funding Stage #: 1 of 1	
Project Start Date: 05/16/2007	**Project Completion Date**: Q3 2010
Executive Project Committee (EPC) Recommended Actions: • Authorize $63.1M ($44.2M Cap, $8.8M Exp., and $10.2 Contingency) to execute Enterprise Mobile Releases 1 and 2, resulting in the Enterprise Mobile (EM) Program delivery of: 1. Replacement and enhancement of the legacy Field Automation System (FAS) and Pole Test and Treat (PT&T) solutions at a cost of ~$63.1M 2. Business case development, technology evaluation and planning for future releases ($1.4M)	

A) Project Objective Statement

Maintain business continuity by replacing Field Automation System (FAS) and Pole Test & Treat's (PT&T) legacy, end-of-life, mobile field computing systems with an enhanced platform that can also be leveraged in the future to support mobile computing needs across the Enterprise (e.g., Energy Delivery short cycle workgroups) at a project cost of $63.1M. Release 1 (Enterprise Mobile Platform, PT&T Replacement) will be complete in 3Q09, while Release 2 (FAS Replacement) was kicked off in June, 2008 and is scheduled for completion in 3Q10.

B) Project Strategic Objective

The Enterprise Mobile program has been designed to positively impact several PG&E strategic goals while maintaining business continuity for Customer Care – Customer Field Services (CFS), Energy Delivery – Restoration and Engineering & Operations – Electric Operations. The proposed solution is intended to provide option value through a common platform that can support other mobile field organizations. The common platform is designed to reduce PG&E's total cost of ownership by consolidating many of the ~30 "one-off" current mobile platforms. Key considerations of the Enterprise Mobile platform:

Business Continuity

- Legacy mobile applications, such as FAS and PT&T are 3 to 6+ years past end of life. FAS, in particular, suffers from a nearly 50% hardware failure rate (as measured by the number of devices serviced in 2007), and must be replaced. The current FAS drives an estimated $51-85M/year of productivity among field technicians, much of which would be lost without a replacement system.

Customer Service

- The proposed solution is intended to positively impact CAIDI and SAIDI. Using GPS/Automatic Vehicle Locate technology (AVL) technology, dispatchers can assign emergency work to the closest units, improving response times and reducing travel distance.

Shareholder Value and Environmental Impact Through Field Efficiency

- Enterprise Mobile technology enables greater field efficiency through optimized routing and navigation systems. Analysis suggests these systems could reduce driving by as much as 29% in FAS user organizations, reducing fleet costs, reducing environmental impact, and creating capacity to complete additional work.

Regulatory Compliance

- The proposed electronic work order functionality will provide greater visibility into the amount and type

of compliance work completed at any point in time and enhance reporting and adherence to CPUC regulations.

C) Project Scope

The Enterprise Mobile Program will deploy critical functionality required to maintain existing dispatch and mobile capabilities for CC-Customer Field Service, E&O-Electric Operations, and ED-Restoration. The Program uses a multiple Release approach to address near term business continuity issues in PT&T and in the FAS user community, and to mitigate deployment risk. The Enterprise Mobile Program strategic roadmap includes the following releases:

- **Release 1 – Strategy, Platform and PT&T Replacement, Q3 2009:** In Release 1; the EM strategy was defined, a common mobile computing platform was designed and deployed, the GPS/AVL/Telematics technology was validated, a Proof of Concept was launched with PT&T to test the new mobile computing platform and the legacy PT&T mobile system will be replaced
  - The approved EM Strategy identifies near term needs and communicates the longer term vision by base-lining PG&E's legacy Mobile systems, developing detailed business requirements, and identifying technology and process gaps. This effort started in April, 2007 and was completed in September, 2007.
  - The Enterprise Mobile Platform (computing device hardware, communications infrastructure, and software platforms) is designed to support near and longer term mobile computing needs. This effort started in July, 2008 and is scheduled for completion in July, 2009.
  - A GPS/AVL/Telematics (GAT) Proof-of-Concept deployed GPS/AVL telematics technology to a subset of field personnel in August, 2008. The PoC was designed to test critical business case and technology assumptions related to GPS/AVL technology.
  - The Pole Test & Treat (PT&T) Replacement will be the first application to be deployed on the new Enterprise Mobile Platform. This effort started in July, 2008 and will be complete in July, 2009.

- **Release 2 – FAS Replacement, Q3 2010**: Release 2 is intended to maintain existing dispatch and mobile capabilities currently provided by FAS. Release 2 will replace the legacy FAS on a "like for like" basis, and deliver incremental GPS/AVL (advanced vehicle locate) functionality to the CFS, Restoration, and EO teams. Business continuity is the primary driver for Release 2, since the current FAS contributes approximately $50-81M in annual benefits. The original business benefits associated with Release 2 included; field force capacity gains ($3M), fleet savings ($0.4 - 1.4M) and dispatch productivity savings ($3.1M-5M). Due to business continuity concerns because of the high hardware failure rate of current equipment, the functionality that drives these benefits will be deferred to Release 3 to allow for an accelerated Release 2 implementation schedule.

- The revisions to Releases 1 and 2 allow for a "building block" approach toward a future Release 3. To that end, the program team will conduct a gap fit analysis effort. The R2 gap fit will assess and evaluate the differences between the legacy version of the dispatch and mobile application software (Ventyx Service Suite R5.4) and the Release 2 dispatch and mobile application software (Ventxy Service Suite R8.1).

- **Release 3 – FAS Enhancement:** The goal of Release 3 if authorized by the EPC beyond the planning phase, is to further enhance the new mobile and dispatch platform deployed in Release 2 to capture deferred business benefits (e.g., field force capacity gains of $3M, fleet savings of $0.4 - 1.4M and dispatch productivity savings of $3.1M-5M) as well as provide additional Enterprise Mobile functionality (e.g., mobile mapping / GIS, document management, automated dispatch).

In addition to the functional releases listed above, the EM Program has been chartered to:

- Develop a change management program to ensure full benefits capture while minimizing and managing impacts to the organization.
- Provide a common governance structure for all enterprise mobile spend.
- Stabilize legacy FAS system environment to ensure business continuity until launch of EM.

D) Success Criteria

- Complete authorized revised scope of work on schedule within budget.
- Successfully deploy GPS/AVL/Telematics Proof of Concept by the end of 3Q08. Complete.
- Successfully deploy of PT&T Proof of Concept utilizing new mobile application by the end of Q1 2009. Complete.
- Successfully replace the PT&T legacy mobile system including the associated data base systems and interfaces and develop new work order entry system.
- Successfully replace the legacy FAS by the end of Q3 2010.
- Ensure PG&E's internal systems and processes are fully functional upon launch, and that appropriate resources are trained to implement the technology-enabled processes.
- Ensure PG&E's ongoing operations are minimally impacted during the design and any pilot phases.

E) Issues and Risks:

- **Change management:** EM will result in significant changes to current business processes for a large segment of PG&E's field workforce. As a lesson learned from the BT Foundation Release, EM must require that training, ongoing support, and committed change management resources be in place from CFS and Restoration to avoid disrupting business continuity.
- **Technology:** The choice of a single solution vs. a best-in-breed solution introduces varying technological and vendor-related risks; magnified by overall Program scale and scope
- **Organizational:** ED M&C and EO&E have multiple initiatives underway currently, and do not have capacity to provide the number of SME resources required to undertake full Common Design, business case development and change management activities. The Enterprise Mobile Team will continue to work with ED short cycle work groups and the business results team (BRT) to ensure continued focus on process changes or decisions to incorporate the potential for mobility in those processes.

F) Cost, Budget and Benefits Forecast:

Total Cost Table	A.) Total Project Cost A=B+C+D+E	B.) Prior Year(s) Cost	C.) YTD Cost	D.) Remaining Project Cost	E.) Total Project Contingency	F.) Requested Funding Amount	G.) Requested Contingency
1.) Capital	$ 52,679	$15,113	$ 3,744	$ 25,338	$ 8,484	$ 46,012	$ 8,484
2.) Expense	$ 10,458	$ 4,609	$ 7	$ 4,158	$ 1,684	$ 6,957	$ 1,684
3.) Total	$ 63,137	$19,722	$ 3,751	$ 29,496	$10,168	$ 52,969	$10,168

	2008 Budget	2009 Budget	2010 Operating Plan
Capital	$14,718	$19,444	$20,000
Expense	$ 3,000	$ 935	$ 2,800
Total	$22,500	$20,379	$22,800

*** Original 2008 CAP budget was $19.5M, $4.782M budget returned/ reallocated due to start-up delays**

Steady State Cash Flows and Benefits R1-R2

Project Costs / Benefits	Annual Incremental Operating Costs	Annual Benefits

Capital		
Expense 2012-2020	**$ 5,942**	**$ 0.0**
Total	**$ 5,942**	**$ 0.0**

- ***% of Project Cost in the budget/Operating Plan: 100%***
- ***% of Annual Op. Cost in the budget/Operating Plan: TBD***
- ***% of Annual Benefits in the budget/Operating Plan: 0%***

G) Alternatives Considered:
*** NPV Analysis reflects Time Value of Money as of 10/7/08.**
*** EPC 4/7/09 reflects scope of benefits moving from R2 to R3. (Revision of EPC 10/7/08 proposal)**

Scenario	Business Case Description	NPV
EPC 4/7/09 Proposal ***R1 & R2 – Without Benefits***	**Releases 1 (Strategy, Platform, and Pilot) and 2 (Legacy Replacement)**: Replace existing legacy FAS and PT&T functionality and deploy GPS/AVL/Telematics to CFS, Restoration, and EO by Q2 2010 *(Without Hard Benefits)*	**$ -68,215**
Status Quo	**Do nothing** – Allow FAS solution to run to fail and revert to manual dispatch and field service processes in CFS and Outage Management	**$-271,438**
EPC 10/7/08 Proposal ***R1 & R2 – Hard & Soft Benefits***	**Releases 1 (Strategy, Platform, and Pilot) and 2 (Legacy Replacement)**: Replace existing legacy FAS and PT&T functionality and deploy GPS/AVL/Telematics to CFS, Restoration, and EO by Q2 2010 *(With Hard and Soft benefits)*	**$ -50,464**

H) Implementation Plan Overview:

Description of the Phases and Key Milestones/Deliverables	Completion Date
BTSC Review (approval of Mobile Strategy effort)	May 1, 2007
BTSC Review (approval of Mobile Strategy, $2.4M allocation to begin R1)	September 4, 2007
OPSC / UOC Review (approval of $22M budget for 2008 EM activities)	November 29, 2007
Executive Steering Committee Meeting ($4.3M allocation to complete R1, presented draft functional requirements)	December 7, 2007
Executive Steering Committee Meeting (support for staffing full-time business lead)	February 6, 2008
WFM and CMA Vendor selection & RFQ	Sep 2008
Job Estimate submission	Sep 2008
Change management plan developed	Q4 2008
Release 1 PT&T Line of Business PoC deploy	Q1 2009
EPC review and approval of refreshed business case	Dec 2008
Present EM strategy and business case to Board of Directors as an "Inform – No Decision Required" Review	Dec 2008
Release 2 design, build, test	Feb 2009 – Oct 2009
Release 2 deploy	Nov 2009 – Q2 2010
Release 3 design, build, test, deploy	Jul 2009 – Q2 2010

I) Project Team Members

Core Team Members			
Name	**Role**	**% Time on The Project**	**Commitment Obtained (Y/N)**

Shelly Sharp	Business Owner		
Brian Abrahamson	ISTS Sponsor	10-20%	Y
Dave Morris	Customer Care Project Manager	100%	Y
Ron Bispo	Principle Solution Architect	100%	Y
Alain Erdozaincy	ISTS Program Manager	100%	Y
Dana Cameron	Business Planner	50%	Y

J) Made an edit here, does it need to be more in depth?

#	Updates & Changes	Date of Revision	Updated Total Project Cost	Previous Business Case $s Requested	Change Description
1	Change of Release 2 scope and deferral of business Benefits	02-17-2009	$63.1M	$63.1M	Due to field hardware device failure rates, a request to defer benefits to minimize business continuity risks for Customer Care CFS, ED Restoration, and EO&E EO is being requested from the EPC.
2					
3					

2. Business Case Background

2-1. In-Depth Project Description

A. Background

Context for EM:

- Successful deployment of FAS in 1998; system now supports ~650 GSRs, 127 EMTs and 379 Troublemen.
- Mission critical legacy mobile solutions (FAS & VM/PT&T) have surpassed end of life by 3+ years.
- Broad adoption of other mobile applications across the Enterprise (approximately 20 to 30 mobile systems currently in place)
- Evolution of the mobile workforce software landscape allows for adoption of a common platform across Functional Areas
- Business Transformation Mobile Strategy approved by BT Steering Committee in Sept, 2007

Addressing these challenges led to the development and approval of an Enterprise Mobile Strategy by the BT Steering Committee on September 04, 2007.

B. Program progress to date

May, 2007

- *BTSC Request for Mobile Strategy:* The need for a mobile strategy was presented to the BTSC, and $550k was approved to launch a strategy team of PG&E and partner resources.

May – August 2007

- *As-is analysis and Mobile roadmap*: Defined "as-is" capabilities, high level roadmap, and high level "can-be" functionality required from an Enterprise Mobile solution.

- *Initial business case:* Created initial business case and high level workplan for presentation to BTSC.

September / November 2007

BTSC Approval: Results of Enterprise Mobile strategy work, preliminary business case, and implementation roadmap were approved by the BTSC. $2.4M in funding was approved to begin initial business requirements definition, network analysis, and vendor evaluation process.

- *Operating Plan Steering Committee / UOC approval*: OPSC approved $22M budget ($19M capital, $3M expense) for 2008 Enterprise Mobile activities (e.g., business requirements, business case refresh, vendor review and selection, Common Design, etc.)

September – December 2007

- *Functional Requirements Development:* Over 100 SME interviews were held in Q3 and Q4 of 2007 to determine high level functional and technical requirements for an Enterprise Mobile solution

- *Wireless Data Network Strategy & Requirements:* The requirements for a wireless data communications infrastructure were developed through coverage and cost analysis.

January – July 2008

- *Software Vendor Evaluation:* A mobile workforce management software vendor scan identified 6 high potential software vendors, who were invited to participate in an RFI. Workshops were held in mid-July 2008 to evaluate the functional capabilities of each vendor, in preparation for vendor selection recommendations slated for the end of September, 2008.

- *Line of Business Pilot (LoBP) Software Vendor Evaluation and Selection:* Vendor candidates were invited to participate in an RFI. Vendor evaluations are underway, and final selection and RFP are slated for September, 2008.

- *Global Positioning System (GPS)/ Automatic Vehicle Location (AVL)/Telematics Proof of Concept:* A proof-of-concept was deployed in Sierra Division to evaluate the impact of GPS/AVL/Telematics technologies. The PoC is in the last month of data gathering and, when complete, the results will be included into the ongoing business case refresh.

- *FAS end-of-life support:* Purchased 102 re-furbished devices to maintain business continuity for FAS.

August 2008 –February 2009

- *PT&T Proof of Concept Completed:* The PTT&T Proof of concept was completed to test the viability of the new mobile technology platform and to evaluate candidate field devises for the replacement of the legacy PT&T mobile system

- *Engaged the IBEW and ESC Leadership:* The IBEW and ESC Leadership have been regularly briefed to ensure the Enterprise Mobile Program has a robust employee engagement strategy

- *Completed a Business Continuity Risk Assessment:* Completed a business continuity assessment and modified the scope of Release 1, 2 & 3 in order to mitigate the identified business risks.

C. Project Scope

The scope of this project is to replace the legacy mobile solutions that have exceeded end-of-life expectations, and to deploy a mobile platform across the enterprise that creates flexibility and allows for greater benefit capture in the future. EPC approval is sought for revising the scope of Releases 1, 2, due to field hardware business continuity issues and the deferral of business benefits to release 3. On October 7th 2008 the EPC approved scope for the Enterprise Mobile Program. On October 28th 2008, it was determined that the field hardware used by the Field Automation System (FAS) end users experienced approximately 28 hardware failures per week. This hardware failure rate would only provide approximately 10-16 weeks of functionality for the field hardware beyond the Itronix

contract support of August 31, 2010

- **Release 1 – Strategy, Platform and Pilot:** The Strategy, Platform and Pilot results in five major deliverables – A Enterprise Mobile Platform (computing hardware, communications infrastructure, and an IT infrastructure to enable remote management and security), a GPS/AVL/Telematics Proof-of-Concept to validate the impact of GPS technology in the Sierra division, a PT&T Line of Business Proof of Concept to evaluate the Mobile Platform, replacing the legacy PT&T mobile system and associated data base systems and an effort to refresh the EM business case. Total costs for Release 1 are estimated at $9.1M ($5.5M in capital, $2.0M in expense, $1.5M in contingency).

    - **Release 2 – FAS Replacement:** This release replaces the end-of-life FAS mobile solution with updated dispatch, mobile, and new GPS/AVL (automatic vehicle location) technologies at a cost of $63.1M ($44.2M Cap, $8.8M Exp., and $10.2 Contingency) The Program will design Releases 1 and 2 to be building blocks toward a future Release 3 launch to the extent possible. To that end, the program team will conduct a gap fit analysis effort. The R2 gap fit will assess and evaluate the differences between the legacy version of the dispatch and mobile application software (Ventyx Service Suite R5.4) and the Release 2 dispatch and mobile application software (Ventxy Service Suite R8.1

- Potential for rework exists due to minimal common design analysis in Energy Delivery and the gap fit between current and proposed scope. Engagement with ED short cycle work groups and the Business Results Team (BRT) will continue to ensure they consider the future impact of Enterprise Mobile when designing their future state processes.

  The dispatch and mobile applications upgrades in Release 2 are required to maintain current levels of productivity in CC Customer Field Service, ED-Restoration, and E&O Electric Operations. There are only incremental benefits from the new dispatch and mobile applications, since much of the functionality already exists in FAS. When combined with new GPS/AVL functionality, Release 3 results in $3M in annual generated capacity and $0.4-1.4M in annual reduced vehicle costs.

In addition to the deployment of software and hardware across CC, ED, and EO, the Enterprise Mobile Program will also:

- **Develop a change management program to ensure full benefits capture while minimizing and managing impacts to the organization.**

- **Create common governance structure via EM Executive Committee for mobile-related spend:** As part of the EM mandate, the Program will create a governance process to leverage common platforms to improve the time to deploy mobile solutions while reducing the cost of development. This will involve a review process for any utility mobile projects requesting IT resources with EM governance to ensure coordination.

- **Stabilize legacy systems to ensure business continuity until launch of EM**

- **Replace multiple legacy system interfaces in FAS environment using PG&E ISTS standards**

2-2. Project Benefits Description

A. Benefits Approach

The Program team has undertaken an effort to refresh the 2007 business case to take into account a number of other

in-flight initiatives (e.g., Business Transformation, Customer Care – Customer Field Services Productivity Project, Lean Six Sigma Scheduling Initiative, SmartMeter, etc.) and to reflect the latest Program scope. To refresh the potential benefits from the Enterprise Mobile Program, the Program team completed a four step process:

1. **Identify a full set of financial and non-financial benefit drivers**: In this step, a range of potential benefit opportunities, and associated benefits with their respective cost pools were identified.
2. **Prioritize drivers based on potential impact**: The complete list of potential benefits has been prioritized through interviews with subject matter experts and analysis.
3. **Quantify the highest priority drivers**: To support functional area SME perspectives, the potential for each high priority benefit driver is being sized by quantifying the baseline of activity impacted by each benefit (in terms of FTEs or miles driven, for example) and the range of improvement potential (e.g., hours saved or reduction in mileage). In cases where data is not readily available, baselines are being created the through ride-alongs with field personnel, interviews, and/or observations in the field.
4. **Categorize the means of benefit capture**: The Enterprise Mobile Program recognizes that execution of the drivers will create a range of benefits for multiple Lines of Business. Not all of the benefits will have financial impacts, and some Lines of Business may choose to reinvest the capacity gained from the Enterprise Mobile initiative into increased productivity (e.g., doing more with the same amount of resources) rather than reducing budget. For that reason, each Line of Business will categorize how that LoB will capture each benefit in terms of:
    - *Direct benefits:* Financial benefits reflected in Line of Business budgets
    - *Indirect benefits:* Benefits that can be tracked by company metrics (e.g., reliability, safety, compliance, productivity) but do not have a direct budget impact
    - *Insurance:* Benefits that enable the capture of previously agreed to benefits
    - *Future applications:* Benefits that allow for more rapid or less expensive deployment of future technologies

In the first step, a complete list of benefit drivers was developed, which fall into seven major areas:

- **Front-line field productivity:** An increase in the number of jobs completed per day, through performance monitoring, reduced materials management, etc.
- **Back-office productivity:** A reduction in the number of individuals required to process or rework administrative tasks, such as timecards, erroneous meter reads, etc.
- **Scheduling/Dispatch productivity:** A reduction in the number of individuals required to dispatch/schedule field work, achieved through productivity tools such as automated dispatch
- **Fleet management:** A decrease in the expense required to operate and maintain the fleet. These savings come through reduced driving due to automated routing / integrated GPS technologies and enhanced vehicle tracking.
- **Materials management:** A decrease in inventory costs and materials procurement and management through automated purchasing, improved asset tracking, etc.
- **Truck rolls:** Fewer cases of Can't Get In (CGI) for CFS and non-attainment of ED M&C work due to automated call-ahead and enhanced scheduling functionality.
- **Non-financial benefits:** An increase in customer satisfaction and reliability due to faster response times and skills and materials matching to the type of job. Safety improvements will be driven through monitoring vehicle speeds and better access to standard operating procedures at the jobsite.

B. Benefit case

As part of the business case refresh, the Program team completed the four step process. For a number of high-priority benefit drivers, the team has determined the amount of generated capacity from EM. However, Lines of Business have not yet determined how to capture this $28-47M in generated capacity. Some capacity will likely be used to reduce LoB budgets (direct benefits). Other benefits will likely be reinvested to complete more work (indirect benefits).

Due to the work involved with Release 1 & Release 2 for business continuity, the following benefits have

been deferred to Release 3:

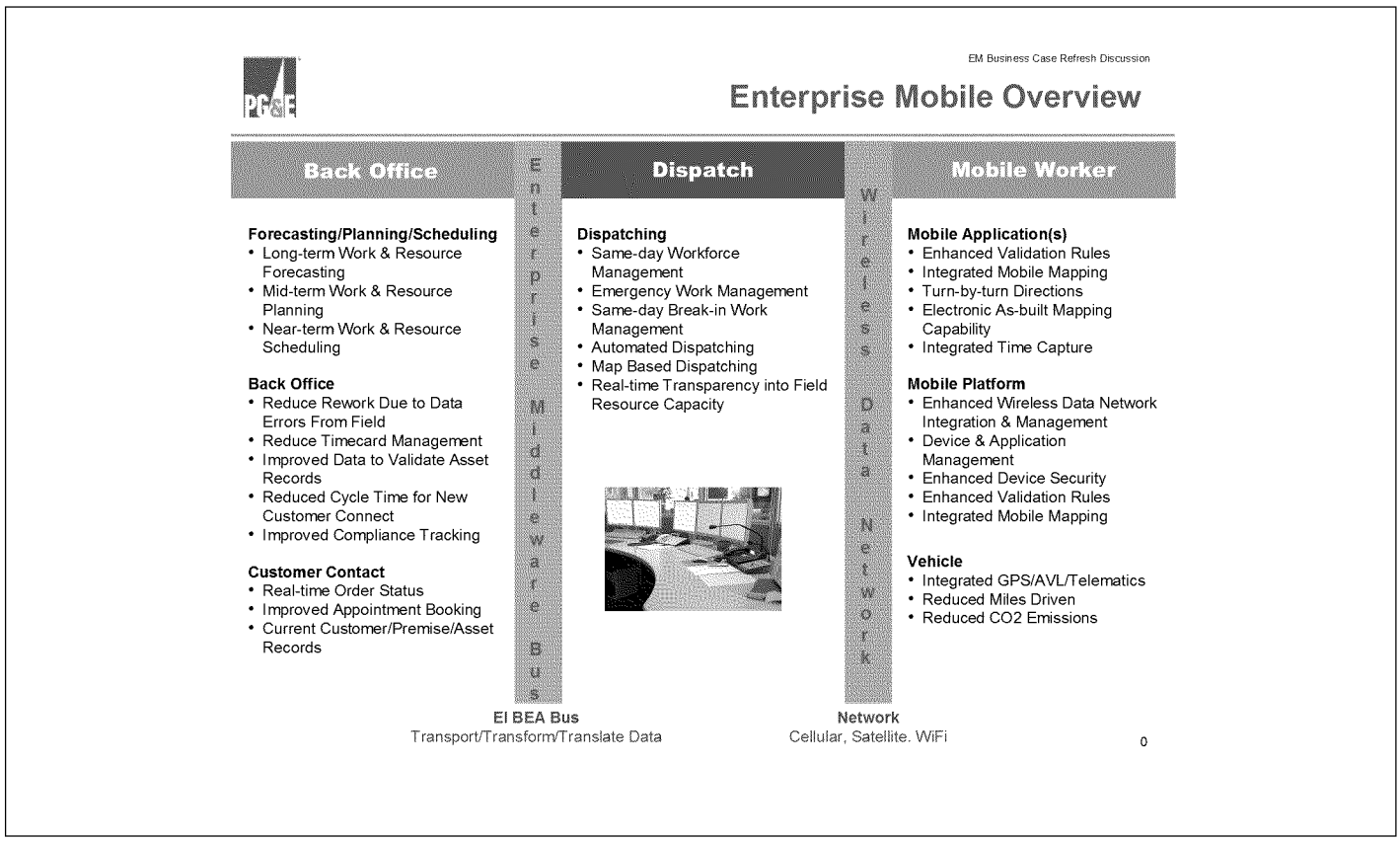
- **Potential direct benefits**
  - *Routing:* Currently, CFS field personnel route their own work. Analysis suggests that computer routing crews could save up to 29% in drive time (generating ~$3M in annual field capacity). These estimates were developed by initially entering historical job routing data into Click dispatch software to get an optimized routing sequence. Both optimized and actual address sequences were then entered into Microsoft MapPoint to get comparable drive times and remove variability due to traffic and local knowledge.
  - *Fleet:* Improved routing will also save fleet expenses as crews reduce the number of miles driven. Based on per mile variable operating costs, reducing vehicle miles driven in the CFS organization results in $0.4-1.4M in annual potential savings.

- **Indirect benefits**
  - *Safety:* The EM Program will positively impact safety metrics by more efficiently dispatching field technicians, monitoring vehicle speeds through telematics and by providing easier access to standard operating procedures at jobsites.
  - *Reliability:* The EM Program will increase CAIDI and SAIDI metrics by improving response time, reducing switching travel time and unaccountable time, and enabling additional maintenance work through increased productivity.
  - *Compliance*: Increasing capacity within CFS and Restoration will enable increased adherence and attention to compliance plans and schedules.
  - *Environmental*: Reducing mileage driven through enhanced routing and turn-by-turn directions could abate nearly 25,000 metric tons of CO2e.
  - *Customer satisfaction*: More effective matching of skills and materials to job types will lead to an increase in brand health and customer satisfaction.

- **Insurance**
  - *Back-office rework:* The new EM tool will provide the ability to validate data in real-time, hence eliminating back-office rework and potential truck-rolls required to correct the error. The benefit from reduction in rework for three common error types (incorrect meter numbers, incorrect meter constants, and incorrect meter configurations for rate schedules) was quantified to be $1.4M-$2.6M annually. Note that this amount has not been counted as a direct benefit to avoid double counting with the SmartMeter project. However, EM technology provides insurance that the benefits associated with SmartMeter will be realized.

- **Future mobile solutions**
  - *Enhanced ability to deploy future solutions:* A goal of the Enterprise Mobile Program is to deploy a scalable, secure mobile computing infrastructure. The computing utilities deployed as part of Releases 1 and 2 (security, consistent form factors, communication network, remote administration/application push capabilities) will allow PG&E to more easily launch mobility solutions in the future.

- **Potential direct benefits**
  - *Dispatcher productivity:* The ability to automate the dispatch of work orders to field personnel via the EM tool will provide a significant benefit over the existing FAS. From field observation, benchmarking comparable utilities (while taking into account the complexity of PG&E's service territory), and analysis, the ratio of dispatchers to field workers could increase to between 1:30-1:50 through automation, yielding $3.1M-5M in increased capacity. This will enable dispatchers to focus greater effort on proactive performance management and more efficient allocation of break-in (emergency) work.



2-3. Executive Level Diagram

3. Financial Analysis

A. 5 Year Cost Budget and Benefits Forecast

By Cost Types:

Annual Cost Forecast	Prior Years	2008	2009	2010	Total
Project Cost					
Capital	$ -	$ 14,548,812	$ 21,563,494	$ 8,083,261	$ 44,195,568
Expense	$ 2,129,797.07	$ 4,509,570	$ 1,056,781	$ 1,077,375	$ 8,773,523
Total Project Cost	**$ 2,129,797.07**	**$ 19,058,382**	**$ 22,620,275**	**$ 9,160,636**	**$ 52,969,090**
Ongoing O&M Cost					
Capital	$ -	$ -	$ -	$ -	$ 10,239,109
Expense	$ -	$ -	$ 4,376,810	$ 7,973,272	$ 71,770,574
Total Ongoing O&M Cost	**$ -**	**$ -**	**$ 4,376,810**	**$ 7,973,272**	**$ 82,009,683**
Total Cost (Expected)	**$ 2,129,797.07**	**$ 19,058,382**	**$ 26,997,085**	**$ 17,133,907**	$ 134,978,773
Other Scenarios					
Total Cost (Best)	**$ 2,129,797.07**	**$ 19,058,382**	$ 24,090,318	$ 15,715,950	$ 126,585,178
% Variance		*0.00%*	*-10.77%*	*-8.28%*	*-6.22%*
Total Cost (Worst)	**$ 2,129,797.07**	**$ 19,058,382**	$ 30,012,042	$ 18,565,867	$ 143,494,561
% Variance		*0.00%*	*11.17%*	*8.36%*	*6.31%*
Project Contingency		**$ 3,811,676**	**$ 4,524,055**	**$ 1,832,127**	**$ 10,167,859**
% of Total Cost		**7.5%**	**8.9%**	**3.6%**	**19.2%**

Project costs and contingencies for Releases 1-2 of the Enterprise Mobile program total an estimated $63.1M, of which the largest portion ($54.0M) are in Release 2. These costs fall primarily in three categories – software, hardware, and labor. The cost discussion below highlights the major components of cost by Release, and exclude contingencies and AFUDC. *Note: costs quoted are average costs.*

Release 1 – Platform & Pilot ($9.1M)
Release 1 includes devices and infrastructure for the Enterprise Mobile Platform (computing hardware, communications infrastructure, and an IT infrastructure to enable remote management and security), the PT&T Line of Business Pilot, and the GPS/AVL/Telematics Proof-of-Concept

- **Hardware**
  - *EMP infrastructure:* An estimated $350,000 of server hardware is required for the enterprise mobile platform
  - *LoBP devices:* ~$690K required for 105 mobile devices, costing $9,400 each (including device, communications hardware, cradle and device mounting.) Hardware warrantees are an additional $100 per device Need to determine accuracy of the numbers above
  - *GAT pilot:* ~$40K total for 3-month device lease from vendor; with service charges of $171/mo for satellite-enabled devices, and $88/mo for non-satellite devices
- **Software**
  - *EMP software:* Software license costs of ~$245K required for initial WFM app licenses
  - *LoBP application*: Total software license costs estimated at ~$50K ($500/seat for 100 seats)
- **Internal & External Labor**
  - Application development & systems integration costs are ~$2.5M total for internal and external labor
  - Device installation/removal requires an additional ~$220K of labor

Release 2 – FAS Replacement ($54.0M)

Release 2 will deploy over 1,300 computers, communications devices, and mounting units to CFS, Restoration and ECCO, including hardware for GPS and AVL. The Program will also require incremental infrastructure computing capacity to support development, test, production, and disaster recovery environments. Common design will also occur in Release 2

- **Hardware**
  - *Mobile data terminals:* The EM Program will deploy a mix of ruggedized ($3,250/unit) and semi-ruggedized laptops ($2,850/unit) to approximately 1,300 crews. These will be mounted to the vehicle via a cradle/docking station ($450/unit). Warranties for cradles and equipment will cost $45/year.
  - *Communications hardware:* Each unit will have satellite, cellular, and WiFi communications equipment ($1,700/unit) to provide maximum connectivity. Connection costs estimated at $55/year.
  - *Development, test, production and disaster recovery infrastructure:* Hosting the EM Program in PG&E data centers will require $1.75M in additional servers and storage.
- **Software licensing and support**
  - *Mobile licensing and support:* Based on comparable deployments and responses to the EM RFI, software licensing costs have been estimated at ~$3.2M, with a yearly software maintenance cost of $600K
  - *Software distribution tools:* $820K in total licenses ($600/seat)
  - *WFM Application licensing:* $2.8M in total licenses ($1,500/seat for 2,850 seats)
  - *Development, test, production and disaster recovery infrastructure:* Hosting the EM Program in PG&E data centers will require $425K in additional infrastructure software
- **Internal and external labor**
  - *Common design:* Labor costs for common plan, analyze, and design total $1.4M (of which $0.8M are PG&E labor)
  - *Application development and systems integration:* Configuring and deploying the EM Program across CFS and Restoration will require an estimated systems integration cost of $11.6M ($6.5M of PG&E labor) at a blended rate of $178/hr.
  - *HW installation:* $780K for mobile device installation, at $610 per device

C. By Categories:

Project Cost	Prior Years	2008	2009	2010	Total
Capital					
Labor	$ -	$ 4,998,971	$ 6,770,409	$ 552,104	$ 12,321,484
Material	$ -	$ 1,024,120	$ 8,212,450	$ 7,313,176	$ 16,549,746
Contract	$ -	$ 7,256,440	$ 4,998,067	$ 67,555	$ 12,322,062
Material Burden	$ -	$ 15,829	$ 82,125	$ 73,132	$ 171,085
Employee Related	$ -	$ 407,552	$ 947,857	$ 77,295	$ 1,432,704
Other	$ -	$ 455,624	$ -	$ -	$ 455,624
AFUDC	$ -	$ 390,277	$ 552,586	$ -	$ 942,863
Project Capital Cost	**$ -**	**$ 14,548,812**	**$ 21,563,494**	**$ 8,083,261**	**$ 44,195,568**
Expense					
Labor	$ 226,282.87	$ 450,202	$ 595,830	$ 607,441	$ 1,879,756
Material	$ 761.68	$ 10,123	$ -	$ -	$ 10,884
Contract	$ 1,902,389.12	$ 4,048,504	$ 460,951	$ 469,934	$ 6,881,777
Material Burden	$ 114.25	$ 742	$ -	$ -	$ 856
Employee Related	$ 249.15	$ -	$ -	$ -	$ 249
Other	$ -	$ -	$ -	$ -	$ -
Project Expense	**$ 2,129,797**	**$ 4,509,570**	**$ 1,056,781**	**$ 1,077,375**	**$ 8,773,523**
Total Project Cost (Expected)	$ 2,129,797	$ 19,058,382	$ 22,620,275	$ 9,160,636	$ 52,969,090
Total Project Cost (Best)	*$ 2,129,797*	$ 19,058,382	$ 20,029,412	$ 8,257,524	$ 49,475,116
% Variance		*0.00%*	*-11.45%*	*-9.86%*	*-6.60%*
Total Project Cost (Worst)	*$ 2,129,797*	$ 19,058,382	$ 25,319,328	$ 10,077,750	$ 56,585,257
% Variance		*0.00%*	*11.93%*	*10.01%*	*6.83%*
Ongoing O&M Cost					
Capital					
Labor	$ -	$ -	$ -	$ -	$ -
Material	$ -	$ -	$ -	$ -	$ 10,137,732
Contract	$ -	$ -	$ -	$ -	$ -
Material Burden	$ -	$ -	$ -	$ -	$ 101,377
Employee Related	$ -	$ -	$ -	$ -	$ -
Other	$ -	$ -	$ -	$ -	$ -
AFUDC	$ -	$ -	$ -	$ -	$ -
Ongoing--Capital	**$ -**	**$ -**	**$ -**	**$ -**	**$ 10,239,109**
Maintenance Expense					
Labor	$ -	$ -	$ 1,210,000	$ 3,080,000	$ 35,090,000
Material	$ -	$ -	$ 134,513	$ 1,277,872	$ 14,863,664
Contract	$ -	$ -	$ 210,472	$ 3,602,621	$ 18,847,793
Material Burden	$ -	$ -	$ 1,345	$ 12,779	$ 148,637
Employee Related	$ -	$ -	$ -	$ -	$ -
Other	$ -	$ -	$ 2,820,480	$ -	$ 2,820,480
Ongoing -- Expense	**$ -**	**$ -**	**$ 4,376,810**	**$ 7,973,272**	**$ 71,770,574**
Total O&M Cost (Expected)	**$ -**	**$ -**	**$ 4,376,810**	**$ 7,973,272**	$ 82,009,683
Total O&M Cost (Best)	*$ -*	$ -	$ 4,060,906	$ 7,458,426	$ 77,110,063
% Variance			*-7.22%*	*-6.46%*	*-5.97%*
Total O&M Cost (Worst)	*$ -*	$ -	$ 4,692,714	$ 8,488,118	$ 86,909,304
% Variance			*7.22%*	*6.46%*	*5.97%*

D. Benefits Breakout:

Annual Benefits Forecast	Prior Years	2008	2009	2010	Total
Expected Scenario					
Capital		$ -	$ -	$ -	$ -
Expense		$ -	$ -	$ -	$ -
Total Benefits (Expected)		**$ -**	**$ -**	**$ -**	$ -
Best Scenario					
Capital		$ -	$ -	$ -	$ -
Expense		$ -	$ -	$ -	$ -
Total Benefits (Best)		**$ -**	**$ -**	**$ -**	$ -
% Variance					
Worst Scenario					
Capital		$ -	$ -	$ -	$ -
Expense		$ -	$ -	$ -	$ -
Total Benefits (Worst)		**$ -**	**$ -**	**$ -**	$ -
% Variance					

Benefits Forecast	Prior Years	2008	2009	2010	Total
Capital					
Labor		$ -	$ -	$ -	$ -
Material		$ -	$ -	$ -	$ -
Contract		$ -	$ -	$ -	$ -
Material Burden		$ -	$ -	$ -	$ -
Employee Related		$ -	$ -	$ -	$ -
Other		$ -	$ -	$ -	$ -
AFUDC		$ -	$ -	$ -	$ -
Capital		**$ -**	**$ -**	**$ -**	**$ -**
Expense					
Labor		$ -	$ -	$ -	$ -
Material		$ -	$ -	$ -	$ -
Contract		$ -	$ -	$ -	$ -
Material Burden		$ -	$ -	$ -	$ -
Employee Related		$ -	$ -	$ -	$ -
Other		$ -	$ -	$ -	$ -
Expense		**$ -**	**$ -**	**$ -**	**$ -**
Total Benefits (Expected)		**$ -**	**$ -**	**$ -**	$ -
Total Benefits (Best)		$ -	$ -	$ -	$ -
Variance %					
Total Benefits (Worst)		$ -	$ -	$ -	$ -
Variance %					

E. Financial Benefits:

The following amount of generated capacity has been quantified on an annual basis but have been deferred to Release 3 for business continuity:

- Routing (reduced drive time): $3M
- Fleet (reduced fleet operating cost): $0.4M-1.4M
- Dispatcher productivity (increased number of techs supported by each dispatcher): $3.1M-5M

These benefits have been sized in terms of the amount of capacity generated. The project team is working with the Lines of Business to define how those benefits will be captured (e.g., headcount reduction, increased amount of work completed, reduced overtime, reduced contractor spend, etc.). The team has evaluated two scenarios for each alternative, one which assumes all benefits are monetized directly (e.g., result in budget impact) and another which assumes all benefits are indirect (e.g., do not result in budget impact).

Benefits have been phased in (25% of run rate annual benefits in the first two quarters after launch, 50% in the subsequent two quarters, and 100% in each quarter thereafter) to account for the extensive change management required with an Enterprise Mobile deployment.

3-2. Alternative Analysis

Indicate the net present value of after-tax cash flows using the EASOP Program.

- Based on the output from Risk Assessment section, create different to use in the EASOP model based on the risk level (Best, Expected, Worst)

	Total Cost (13 Years) ($000)	Total Benefits (13 Years) ($000)	B/C Ratio	WACC	Cash Flow Measures			PVRR ($000)
					NPV ($000)	ROE	Payback	
Project Expected Best Worst	$ 137,491	$ -	7.2		*$ (68,215)*	*100%*	*5*	*$ 115,131*
Status Quo:	$ 681,337	$ -	0.0		*$ (271,438)*	*0*	*0*	*$ 458,123*
Alternative 1	$ 137,491	$ (44,928)	7.7		*$ (50,464)*	*>100%*	*5*	*$ 85,171*
Alternative 2	$ 137,491	$ -	7.2		*$ (68,215)*	*>100%*	*5*	*$ 115,131*
Alternative 3								
Alternative 4								

The project team considered three potential deployment scenarios:

- **Alternative 2 EXPECTED (Release 1 and 2) – (EPC Proposal 4/7/09)** Releases 1 and 2 will replace legacy FAS and PT&T systems and deliver GPS/AVL (advanced vehicle locate) to the CFS, Restoration, and EO teams. In addition, as part of Release 2, EM will perform Common Design analysis to ensure that deployed functionality can be deployed by ED M&C in the future. This Release option would reduce project expenditures and eliminate the need for an extensive change management effort in M&C, but would yield marginal benefit capture in CFS as most functionality already exists in FAS. (Conservative – With Soft Benefits and Without Hard Benefits – Hard Benefits Shifted to R3)

- **Status Quo** – FAS is currently suffering from frequent and significant outages due to a legacy communications network and hardware that is no longer supported by the manufacturer. Based on the productivity loss experienced when FAS is down (between 30-50%, based on analysis of FAS data and supervisor interviews), a failure of FAS could generate between $51 and $85M annually in incremental labor expense for field techs and dispatchers. For this alternative, we assumed FAS units would fail over a 5 year period.

- **Alternative 1 (Release 1 and 2) – (EPC Proposal 10/7/08)** Releases 1 and 2 will replace legacy FAS and PT&T systems and deliver GPS/AVL (advanced vehicle locate) to the CFS, Restoration, and EO teams. In addition, as part of Release 2, EM will perform Common Design analysis to ensure that deployed functionality can be deployed by ED M&C in the future. This Release option would reduce project expenditures and eliminate the need for an extensive change management effort in M&C, but would yield marginal benefit capture in CFS as most functionality already exists in FAS. (Expected – With Hard and Soft Benefits)

3-3. Company Impact

Prior to an organizations mobilization on Enterprise Mobile, each organization or line of business will submit a business case for approval by the Executive Steering Committee and Executive Program Committee for approval.

Proposed Governance Review Timeline:

10/07: EPC approval for Releases 1 and Release 2.
10/15: Job Estimate routed for Approval
12/08: EPC preview of Board of Directors presentation and review updated cost estimates.
Ongoing: Monthly Executive Steering Committee Reviews
Ongoing: Monthly Stakeholder Advisory Committee Reviews

B. Financial Statement Impact:

The costs related to this project are not anticipated to have a material impact on the company's earnings per share. Program costs for Releases 1 and 2, including contingency, are less than $100M. This by definition implies no material impact on the company's earnings per share.

C. Accounting and tax implications:

No significant tax implications have been identified with the implementation of this project.

4. Project Metrics

4-1. Company Metrics

A. Impacted Metrics

The following is a discussion on a qualitative impact of the EM Program on company metrics. The team is currently quantifying the impact and expects to have results for a December EPC review.

Tier 1 Company metrics (as per PG&E Tier One Company Scorecard)

- **Earnings from Operations:** Releases 3 will reduce direct expenses, increase field productivity, and deploy $53.6M in capital, resulting in an increase in earnings from operations.
- **Reliable Energy Delivery Index:** The EM Program will allow for more rapid and coordinated response to storms and outages, potentially improving CAIDI and SAIFI metrics.
- **Employee Engagement Survey:** The EM Program will reduce the amount of rework and administrative tasks, thereby increasing the amount of productive time on the job. However, it is a significant change from the current processes, particularly for ED M&C personnel, which may result in learning challenges as the Program is adopted.

Safety Performance: The EM Program will help ensure the right people with the right skills are deployed to the job site at the right time with the right tools. In addition, the expected EM solution will also be able to monitor vehicle operation. The combination of these capabilities, combined with the right business processes, will improve safety performance

4-2. Project Metrics

A. Metrics definitions

Project Specific Measures

In Release3 if approved by the EPC, the following CFS metrics will be measured to determine the impact of the project:

CFS metrics affected (as per 2008 Customer Care Director Dashboard – Customer Field Services)

Efficiency

- **GSR Productivity:** By enabling real-time performance management, EM will allow supervisors to more effectively manage the efficiency and effectiveness of their crews.
- **Work Unit Production – GSR**: Higher GSR productivity from EM will lead to a higher number of work orders completed.
- **Work Unit Production – EMT** Higher EMT productivity from EM will lead to a higher number of work orders completed.
- **Miles per tag:** Vehicle miles required to service tags will be reduced through EM's GPS turn by turn directions and improved routing.
- **Unit cost per tag performed:** The cost of servicing an individual work order will decrease as GSR/EMT/Troublemen productivity improves.
- **Standard rate for GSRs and EMTs:** By increasing productivity, the standard billing rate for CFS personnel will be reduced.
- **Crew idle times due to not having work:** Today, crews may not always be assigned work through FAS. EM will allow CFS to track the amount of idle time caused by not having work assignments.
- **CGIs:** Automatic call-ahead will reduce the number of CGIs (Can't Get Ins) by contacting customers ahead of the scheduling visit.

Customer satisfaction

- **Gas leak immediate response:** CFS has a goal of responding to gas leaks within 1 hour of notification. EM will enable higher compliance with this target through more efficient routing.
- **After Field Visit Survey Q5 Overall Satisfaction**: The EM Program will increase customer satisfaction and service levels by improving response time and reducing outage durations.
- **After Field Visit Survey Q2 On Time Arrival:** Through optimized routing, turn-by-turn directions, and automated dispatch, EM will allow CFS to be more responsive to customer needs.
- **AFV Q1A Call Aheads CA:**
- **Premier Survey (Reported Annually)**

Safety

- **OSHA Injury Rate:** Tracking of speeding and hard braking, increased access to standard operating procedures, and more effective skill matching will slightly reduce the OSHA recordable rate.
- **Motor Vehicle Incident Rate:** Tracking of speeding and hard braking will reduce the motor vehicle incident rate.

B. Ongoing Monitoring and Reporting

The status of the Program will be reported from work streams to the Program Management Team, who will report to leadership. Examples of reporting activities:

- *Enterprise Mobile Executive Steering Committee:* Update Program status against major milestones and budget, and discuss key issues and risks. Significant Program decisions reviewed and approved. (Monthly)
- *Enterprise Mobile Senior Advisory Committee:* Discussion with key stakeholders across Functional Areas impacted by the Enterprise Mobile Program (Customer Care, Energy Delivery, Engineering & Operations, ISTS, and Shared Services) to update status of Program, get input on upcoming Program decisions, and gain stakeholder alignment. (Monthly)
- *ISTS Steering Committee:* Presentation to update ISTS leadership on Program status and to highlight key technology and project risks. (Monthly)
- *EPC – Project Executive Reporting:* Completion of Level 1, 2 & 3 (as required) tools input in support of Enterprise Project Council governance policies and procedures. (Monthly)
- *Program Status Report:* Weekly status report that summarizes current Program status across work streams, budget, and timeline. Identifies key upcoming decisions and highlights risks.
- *Work Stream Status Report:* Regular progress reporting from work stream leads to be consolidated into the Program Status Report.
- Ad-hoc communication as needed.

4-3 Metrics Table

Ref #	Performance Metrics	Metric Owner

5. Risk Assessment

5-1. Risk Assessment

A. Risk Assessment Table

#	Risk Description	Probability of Occurrence (H, M, L)	Difficulty of Timely Detection (H,M,L)	Impact on Project Scope & Schedule (H, M, L)	Impact on Cost	Impact on Project Benefits	Mitigation Strategy, or contingency plans
1	**Change management** – EM will drive change in daily work processes for CFS, Restoration, ECCO, and back office staff	H	L	H	Will require lines of business to dedicate internal labor to training and change mgmt	Complete buy-in required to realize benefits – model assumes ramp over 1 year	Program will deploy broad change management and communications strategy, and has deferred benefits in model until full adoption of new system can be expected
2	**Planning & Design -** Near term system may not be adopted by future organizations (e.g., each organization "goes its own way")	M	M	H	Future applications could cost significantly more if not deployed and hosted on EM platform; investment in Common Design stranded	Benefits from future deployments not counted as part of EM, but there is a soft benefit associated with option value	Engage resources from potential organizations (e.g., ED M&C) early in Common Design process
3	**Planning & Design -** Extrapolation from limited pilot data and assumptions of what capabilities technology can provide may overstate project benefits	M	H	L	N/A	Significant erosion of project benefits if capabilities and pilot results are not realized	Benefits must be calculated by organization to reflect different current state processes; frequent site visits to other utilities to validate technology assumptions
4	**Organizational -** Executive sponsorship for Program must be sustained throughout process	M	M	M	Failure to identify issues early creates potential for rework	Executive sponsorship / evangelism critical for successful change management and adoption	Maintain cadence of communication with executive steering committee

5	**Operational -** Disruption of business activities and productivity loss during transition to new system	M	M	L	Productivity impact of 30-50% from FAS outages, similar results expected for future outages	Disruption may reduce estimated productivity gains for initial period following implementation	Maintain parallel activities where feasible, with phased rollout or implementation. Model benefit ramp over long time period (1 year) to ensure full functionality adopted
6	**Operational -** Data inconsistency during transition or parallel operations of old and new systems (e.g., new system not backwards compatible)	M	L	L	Data issues create additional operational/admin costs for business	Without historical data, difficulty in measuring performance/benefit capture may decrease total impact of Program	Incorporate transition phase operations into testing requirements, with emphasis on exceptions. Maintain separate systems to allow for pulling of historical reports. Design for backwards compatibility.
7	**Technology -** No proven implementations exist of similarly broad mix of functionality in a large-scale mobile utility solution; significant overall complexity risk and vendor risk	H	M	H	Costs and delays incurred to implement missing functionality	Missing functionality in initial releases could delay benefit capture	Phase implementation and rollout of functionality and organizations in waves
8	**Technology –** Risk to ongoing operations from failure of FAS (heightened if project delayed)	M	L	L	Significant cost incurred by business to implement interim solution	Significant delay in benefits capture	Develop stabilization plan in conjunction with FAS team

B. Additional Information:

This section examines existing critical issues the Program faces:

- **Change management resources**: The Program currently has 5 open positions, of which 2 are slated to be sourced from T&D. Filling these resource slots is pending approval of the scope revisions and Release 3.
- **Communications plan:** The communication cascade is pending approvable by Senior Management the delays in communications has caused poor visibility of the program across the organization.
- **Ongoing projects:** A large number of other PG&E initiatives are underway in the EM space, including lean six sigma - scheduling, lean six sigma – timecards, meter to cash, SAP upgrade, etc. Ensuring coordination across these teams during the design and benefit sizing phases will be essential.
- **Scheduling consolidation:** An effort is underway to evaluate the requirements and impact of consolidating the scheduling function across ED and CC. This effort has a significant impact on the design of the EM Program. The principals and scope for an enterprise scheduling solution have not yet been defined
- **Outage dispatch:** Currently, the dispatch function is completed by DO's and ASO's day-to-day, and during level 2 or greater events or storm situations this function is performed by OEC's and local storm rooms. This function may be consolidated with the current dispatch organization in the future. A decision on this organizational structure and business process is required to achieve the EM vision.

5-2 Environmental Impact

A. Environmental Impact

Positive environmental impacts:

- **Reduced mileage:** A more efficient routing and directions systems will reduce the Company's carbon footprint. Assuming a 5-15% reduction in miles driven on vehicles in use by CFS and Restoration results in a savings of nearly 25,000 metric tons of CO_2.
- **Quicker response times:** Faster responses to emergency situations (e.g., gas leaks) will reduce release of methane and other pollutants into the atmosphere.
- **Reduced use of paper:** Migrating from paper based forms for timecards and other record keeping to electronic data capture will reduce use of paper, reducing waste and natural resource depletion.

Potentially negative environmental impacts:

- **Disposal of existing computer hardware:** Approximately 2,000 mobile computing devices used for FAS will need to be disposed of at end of life. These computers have limited economic value but *may* be recycled to prevent potentially toxic materials from entering landfills. (An asset disposition process will be determined during the course of the Program infrastructure selection processes). Disposal costs are included in the current cost structure, but are anticipated to be negligible.

6. Implementation Plan

6-1. Update by removing R3 components.

A. Implementation Strategy Table

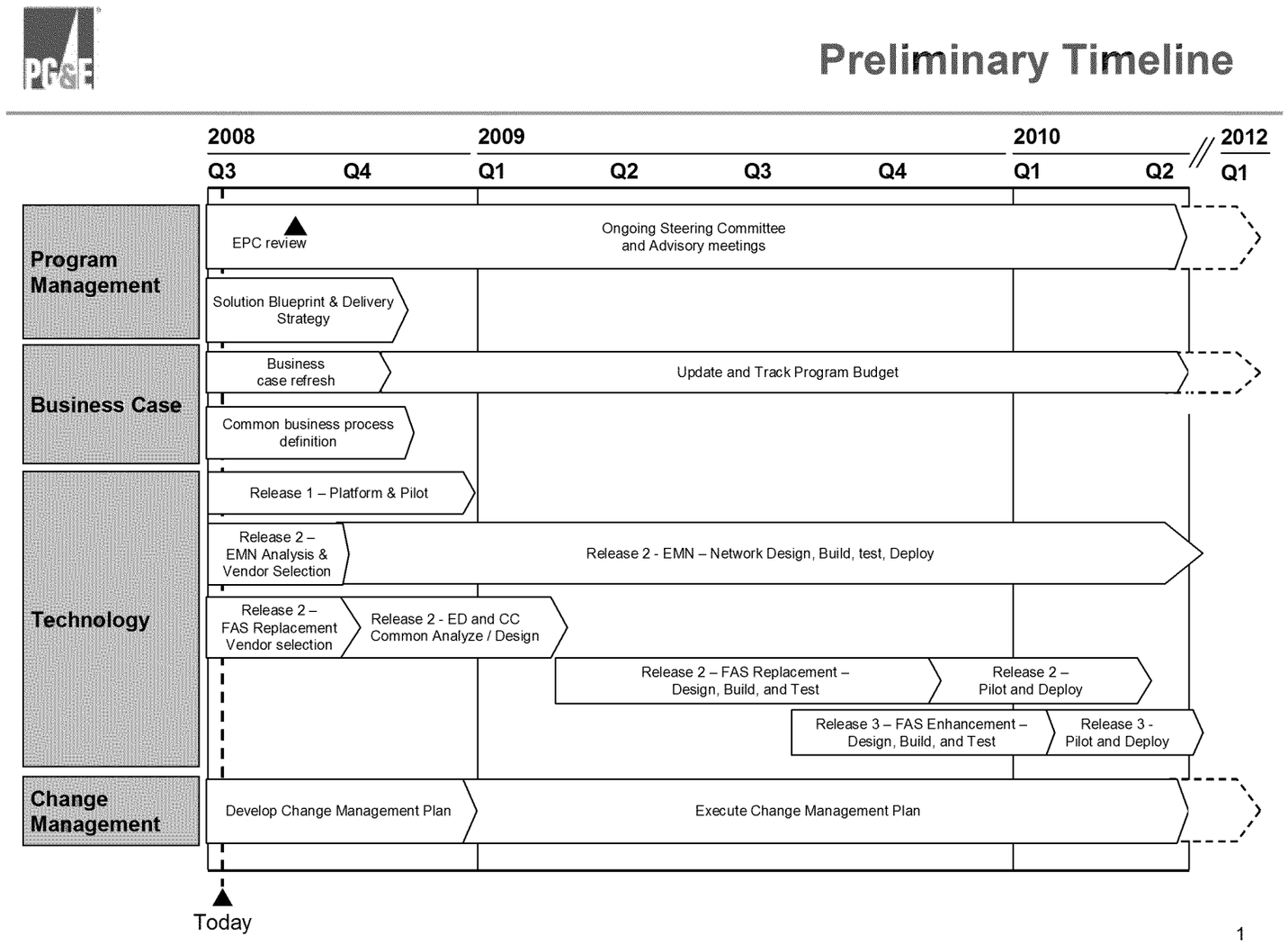
WBS #	Critical Tasks	Duration	Schedule Start Date	Schedule Completion Date	Predecessor Relationship (WBS #)	Successor Relationship (WBS #)	Individual Responsible	Related Risk (Y/N)
1 Program – Business Case (Release 1)								
1.1	Business Case Refresh	12 weeks	7/2008	10/2008	NA	3.1.2.1		TBD
2 Advanced Job Estimate (Release 1)								
2.1	First AJE approve	1 month	3/2/2008	3/31/2008		3.1.1.2		Y
2.2	Second AJE approve	1 month	7/30/2008	8/31/2008	1.1	3.1.1.2		Y
2.3	Full Job Estimate complete	1 month	9/1/2008	9/30/2008		3.1.1.1		Y
3 Technology – 3.1 EMWFM – 3.1.1 Common Planning (Release 2)								
3.1.1.1	Common Business Process Definition	3 months	7//2008	10/2008	NA	3.1.2.1		TBD
3.1.1.2	Vendor Selection (RFI, Evaluation, RFQ and Analysis)	7 months	2/2008	9/2008	NA	3.1.2.1		TBD
3.1.1.3	Solution Blueprint and Delivery Strategy	2 months	8/2008	9/2008	NA	3.1.2.1		TBD
3 Technology – 3.1 EMWFM – 3.1.2 Common Design (Release 2)								
3.1.2.1	CC–CFS & ED Common Analyze and Design	5 months	10/2008	1/2009	3.1.1.1, 3.1.1.2, 3.1.1.3, 3.2.1	3.1.3.1, 3.1.3.5, 3.1.4.1		TBD
3 Technology – 3.1 EMWFM – 3.1.3 CFS Design and Implementation (Releases 2 and 3)								

3.1.3.1	Release 2 – Detailed Design	1 months	2/2009	3/2009	3.1.2.1	3.1.3.2, 3.1.3.3		TBD
3.1.3.2	Release 2 – Build and Test	8 months	4/2009	10/2009	3.1.3.1	3.1.3.4, 3.1.4.1		TBD
3.1.3.3	Release 2 – Deployment Planning	8 months	4/2009	11/2009	3.1.3.1	3.1.3.4, 3.1.4.1		TBD
3.1.3.4	Release 2 – Deployment	4 months	11/2009	4/2010	3.1.3.2, 3.1.3.3	NA		TBD
3.1.3.5	Release 3 – Detailed Design, Build, & Test	6 months	7/2009	4/2010	3.1.2.1	3.1.3.6		TBD
3.1.3.6	Release 3 – Deployment	3 months	4/2010	7/2010	3.1.3.5	NA		TBD
3 Technology – 3.2 EMGAT Proof of Concept (Release 1)								
3.2.1	AVL–Telematics Proof of Concept Deployment & Analysis	8 months	01/2008	08/2008	NA	3.1.2.1		TBD
3 Technology – 3.3 EMLoBP – Line of Business Pilot (Release 1)								
3.3.1	Vendor Selection	2 months	06/2008	08/2008	NA	3.3.2		TBD
3.3.2	Analyze, Design, Build, Test & Deploy	4 months	08/2008	11/2008	3.3.1	3.3.3		TBD
3.3.3	Pilot & Evaluation	1 month	12/2008	03/2009	3.3.2, 3.4.3	NA		
3 Technology – 3.4 EMP (Platform – Infrastructure Project) (Release 1)								
3.4.1	Platform Plan & Analyze	2 months	06/2008	07/2008	NA	3.4.2		
3.4.2	Prototype Design, Build & Test	2 months	08/2008	09/2008	3.4.1	3.4.3		TBD
3.4.3	Pre–Production Design, Build & Test	2 months	10/2008	11/2008	3.4.2	3.4.4		TBD
3.4.4	Pilot & Evaluation	In line with EMLoBP Pilot Evaluation			3.4.3, 3.3.2	NA		TBD
3 Technology – 3.5 EMN (Network – Infrastructure Project) (Release 1)								

3.5.1	Analysis & Vendor Selection	10 months	01/2008	09/2008	NA	3.5.1		TBD
3.5.2	Network Design, Build, Test	8 months	10/2008	05/2009	3.4.4	3.1.3.2, 3.5.2		TBD
3.5.3	Deploy network	In line with WFM Releases of delivery			3.5.2, 3.1.3.4	NA		TBD
4 Change Management								
4.1	Develop Change Management Plan	6 months	Q3 2008	Q4 2008	NA	4.2		TBD
4.2	Execute Change Management Plan	In line with technology delivery timescale						TBD

B. Additional Information

Preliminary timeline:



GRC2011-Ph-I_DR_DRA_208_Q04_Atch01

Appendix
7. Business Case Feasibility Analysis

7-1. The Company (PG&E) Analysis

A. Flexibility Matrix

	Least Flexible	Moderately Flexible	Most Flexible	Comments
Schedule			X	The current FAS is on a past life-cycle mobile infrastructure. The mobile computing device vendor will not support the device after 08/31/09. Replacing FAS is the top priority for the Enterprise Mobile Program.
Scope	X			The scope of Release 3 deployment is currently out of scope due to business continuity. with the exception of planning purposes and gap fit only
Resources		X		Allocation of resources to the project is critical to meeting Program objectives. Final determination of scope will allow for movement in resource alignment. However, representation from Energy Delivery will be required to ensure long-term success of the Common Design workstream.

B. PG&E SWOT Analysis	
Strengths	**Weaknesses**
– Prior Customer Care experience with FAS implementation reduces change management effort for CFS – End of lifecycle for FAS and PT&T creates strong business support and alignment for project within Customer Care and Engineering & Operations – Launch of numerous large IT solutions over last 18 months (e.g. SmartMeter upgrade) gives ISTS significant deployment experience – Strong Customer Care and ISTS leadership and partner involvement – Enterprise Mobile strategies align with organizational focus on safety and environment	– Ongoing BT-related process changes create complexity in scope definition and prioritization – Limited availability of ED M&C subject matter experts for project due to competing priorities – Large change management effort required to gain acceptance for new technology and processes
Opportunities	**Threats**
– Increasing maturity of mobile technology solutions for the utilities industry – Potential of Program to yield financial and non-financial benefits (e.g., safety, compliance, customer satisfaction, environmental, etc.) – Funding secured for initial implementation Releases	– Relative merits and run rate costs of single application vs. best-in-breed solutions not defined. – Large deployment relative to other utility deployments raises vendor and technology scalability risks – Environmental and regulatory changes may impact benefit and cost estimates (see risks, environmental section)

7-2. Stakeholder Assessment

Stakeholder Assessment Survey

A. Internal Stakeholders

Stakeholders	Current Assessment	Where they need to be and by when?	Impact	Disruptive or Supportive Change	Importance of Success
1. EM Executive Steering Committee (ESC)	Aware	Buy-In, by 10/01/08	EM ESC has full decision rights for the EM Program.	Supportive	High
2. ISTS Steering Committee	Aware	Buy-in, by 10/15/08	ISTS SC has oversight into IT budget, schedules, and integration into existing PG&E infrastructure and strategy.	Supportive	High
3. EM Senior Advisory Committee	Generally Aware	Buy-In by 09/25/08	Ability to influence business case, technology choice, and rollout; build consensus within organization; and influence Executive Steering Committee	Supportive	High
4. Other Energy Delivery leadership	Generally Unaware	Buy-in by 03/15/09	Ability to build support within organization and help EM design a solution to meet organization's needs and capacity for change.	Supportive	High
5. Other Customer Care leadership	Generally Aware	Buy-in by 12/31/08	Ability to build support within organization and help EM design and implementation plan meet organization's needs and capacity for change.	Supportive	High
6. Front line CFS team	Generally Aware	Acceptance by 3/15/09	Ability to influence design through design process; adoption is critical to success of Program.	Supportive	High
7. IBEW	Aware	Buy-in by 12/31/08	Ability to build support through bargaining unit and ensure design incorporates benefits to crews.	Supportive	High
8. ESC	Aware	Buy-in by 12/31/08	Ability to build support through bargaining unit and ensure design incorporates benefits to	Supportive	High

			crews.		

B. External Stakeholders

Stakeholders	Current Assessment	Where they need to be and by when?	Impact	Disruptive or Supportive Change	Importance of Success
1. Regulatory bodies	Unaware	Acceptance by 3/10	Reviews EM as part of GRC	Supportive	High
2. Vendors	Aware	Buy-in by 9/08	Ability to meet schedules and budget	Supportive	High
3. Partners/contractors	Aware	Buy-in by 9/08	Large number of EM users as part of VM/PT&T pilot	Supportive	Moderate

7-3. Communication Strategy:

Ref #	Information	Purpose of communication	Destination: Org & Contacts	Method of Communication	Individual Responsible	Frequency
1.	Executive Program Report	To ensure Management is updated on current project status	Executive Advisory Committee	Executive Advisory Committee meeting and associated materials	Dave Morris, Brian Abrahamson	Monthly or as requested
2.	Senior Program Report	To ensure Management is updated on current project status	Senior Advisory Committee	Senior Advisory Committee meeting and associated materials	Dave Morris Brian Abrahamson	Monthly or as requested
3.	Program Status	Reporting – Status update that summarizes current Program status across work streams, budget, and timeline	ISTS Executive Project Committee	Meeting and associated materials	Dave Morris Alain Erdozaincy	Bi-weekly
4.	Work Stream Status Report	Present Work Stream Status Report on progress, milestones, issues, risks, new change requests, costs planned next steps/activities	Program Manager and work stream Project Managers	Meeting and status reports	Alain Erdozaincy, Project Mangers	Weekly
5.	Webpage (SharePoint)	Create single clearinghouse of project information to keep Program team and stakeholders apprised of latest Program status	Key selected groups	Intranet	TBD	Available now

6.	Overall Enterprise Mobile Program IT Status Report	Communicate overall Program progress to all IT Project Managers and Technical leads	EM IT Project Managers and Technical Leads	Meeting and status report (posted on SharePoint site)	Alain Erdozaincy, Project Managers	Weekly
7	Engagement with IBEW and ESC leadership	Communicate high level Program goals and timing	IBEW and ESC leadership	In person meetings	Dave Morris	As requested

8. Data and Team Reference and Resource

8-1. Team Resource and Reference

A. Internal Resources … NOTE

Resource Name	Skills Required	Timeframe Needed	Stage/Tasks	% of FTE Needed	Supervisor	Commitment Obtained (Y/N)
Shelly Sharp	Business Owner	2008-2011	ALL	10%	Helen Burt	Y
Dave Morris	Project leadership	2008-2011	ALL	100%	Shelly Sharp	Y
Brian Abrahamson	Project leadership	2008-2011	ALL	20%	Pat Lawicki	Y
Ron Bispo	Program Management	2008-2011	ALL	100%	Brian Abrahamson	Y
Alain Erdozaincy	Program Management	2008-2011	ALL	100%	Elaine Cardenas	Y
Debbie Stanley	Project Management EM-LoBP	2008-2011	ALL	100%	John Sidari	Y
George McQuillister	Project Management EM-EMP Infrastructure	2008-2008	ALL	100%	Shawn Crossley	Y
Dana Cameron	Business Planner	2008-2011	Financial Related	50%	Geri Callejas	Y
Carmen Reyes	Project Manager - Infrastructure	2008	ALL			

B. External Resources … NOTE

Resource Name	Skills Required	Timeframe Needed	Stage/Tasks	% of FTE Needed	Supervisor	Commitment Obtained (Y/N)
Chad Grey	Project Lead	2008	WFM	100%		Y
Rebecca Doenges	Business Analyst	2008	WFM	100%		Y
Hillol Roy	Project Lead	Aug 2008	Wireless Data Network Plan			Y
Brett Tsudama	Technical Architect	Oct 2008	Wireless Data Network Plan			Y
Robert Uhlaner	Engagement Partner	2008	Business Case			Y

Gaurav Batra	Analyst	2008	Business Case	100%		Y

8-2. Data Reference and Resource

9. Cost Estimating

Total Cost Estimate Confidence Score:	**3.75**
Contingency: % of Total Project Costs	**19%**
Spend-to-date: % of Total Project Costs	**37%**

Instructions: Mark the appropriate Rank for all five Cost Estimate drivers and enter a percentage Weight of Confidence Driver (make entries in Yellow columns). Only one Rank should be marked for each Cost Estimate driver. Weight of Confidence driver is a subjective estimate of how impactful each Confidence Driver is for this particular project--Weights should total to 100%.

	Uniqueness of Work	Rank		Cost Estimate Rigor	Rank		Risk Mitigation Strategy	Rank		Project Scope	Rank
5	Project Team has extensive experience with this type of project, or has developed their estimate in partnership with those who have. Project involves technology or assets currently in service at PG&E.		5	Detailed bottoms-up cost estimate completed, with high certainty of labor, materials, and contract pricing.		5	High confidence that all risks are identified and detailed, feasible mitigation plans are documented, the costs of which are incorporated into the estimate.		5	Project Scope is well defined and the project is similar to other projects PG&E has managed in the recent past. Project Scope is marked as least flexible in the flexiblity matrix	
4			4		4	4		4	4		4
3	PG&E has moderate experience with the project type, or has detailed benchmark from the same work at similar utilities.	3	3	Detailed bottoms-up cost estimate completed, but significant cost volatility may exist in labor, materials, or contract pricing.		3	Some lower impact risks may not have full mitigation plans.		3	Project scope has been defined, but there are expectations that the project scope will have minor revisions over the remainder of the life of the project. Project Scope is moderately flexible in the flexibility matrix.	
2			2			2			2		
1	PG&E has little or no experience with project technology or assets, and neither do any similar utilities.		1	Estimates based on "rule of thumb" or high-level benchmarks.		1	Risks and mitigation plans not identified, or mitigation costs are not included in the estimate.		1	Project scope is not well defined. Project Scope is marked as most flexible in the flexibility matrix	
	Weight of Confidence Driver:	**25%**		**Weight of Confidence Driver:**	**25%**		**Weight of Confidence Driver:**	**30%**		**Weight of Confidence Driver:**	**20%**