Programs supporting public safety and system integrity
February 1, 2012

Distribution:

- **Gas Pipeline Replacement Program (GPRP)** – Systematic program initiated in 1985 to replace cast iron and pre-1940 steel pipelines. Commitment to replace all cast iron main by 2014. On average, PG&E spent approximately $59 million annually from 2000-2010 and replaced approximately 34 miles per year.

- **Copper Service Replacement Program (CSRP)** – Systematic program initiated in 2006 to replace all copper services. Commitment to replace all copper services by 2013. On average, PG&E spent nearly $41 million annually in the last three years and replaced approximately 6200 services per year. PG&E plans to replace 7500 and 3500 services in 2012 and 2013, respectively, to essentially complete the CSRP. (There are approximately 500 additional service replacements that will be completed once local restrictions on street work are lifted.)

- **Customer High Pressure Regulator Replacement Program** – Elimination or replacement of customer high pressure regulator also referred to as farm taps. This replacement work began in 2011. The plan is to replace 1000 locations annually for the next several years and spend approximately $40 million to $50 million annually.

- **Leak Survey** – Routine (5 year, 3 year and annual), Special, Rechecks, and Customer Call-ins. PG&E routinely surveys about 800K services each year. On average, PG&E spent approximately $22 million annually, 2006 through 2010 (although the amounts varied significantly by year).

- **Mark and Locate (Gas and Electric)** – All customer generated Mark and Locate for all Distribution Gas, Electric and Fiber Optic assets. On average, PG&E responds to approximately 300K requests at a cost of over $25 million annually.

- **Meter Protection Program** – Long term program initiated in 1990 to install service valves and meter protection posts. Commitment to address locations by 2016. PG&E will accelerate to complete this initial program by the end of 2013. This program will spend about $20 million annually to address 30,000 locations. Services identified after September 2011 will be addressed on an ongoing basis.

- **Distribution Integrity Management (DIMP)** – Enhancements of current work practice to comply with CFR 49 192 subpart P. PG&E will spend at least $60 million from 2011-2013.

- **Preventive Maintenance** – Routine maintenance on Mains, Services, Valves, Regulator Stations, and Non-recurring expense projects. PG&E spent an average of approximately $20 million annually in 2006-2010 (although the amounts varied significantly by year).

- **Corrective Maintenance** – Leak Repairs, Corrective Maintenance on Valves, Regulator Stations, Cathodic Protection Systems, and Dig-ins. In 2006-2010, PG&E

spent an average of $38 million per year on corrective maintenance (although the amounts varied significantly by year).

Transmission:

- **Pipeline Leak Survey** – PG&E surveys approximately 6,600 miles of Transmission Pipeline either by foot or by plane every year. On average, PG&E spends approximately $1 million annually on Transmission Leak Survey. Additionally, PG&E has increased its monitoring of the gas transmission system until pipeline segments without documented strength tests can be tested or replaced.

- **Gas Transmission Pipeline Patrols** – PG&E conducts regular pipeline patrols either by foot or by plane every year. PG&E checks pipelines near highway and railroad crossings, checks for exposed pipe, investigates aerial patrol reports and conducts special patrols for possible earth movement, earthquake, or storm damage. PG&E spends around $600,000 annually on Gas Transmission Pipeline Patrols.

- **Pipeline Marker Replacement Program** – PG&E regularly replaces or repairs its pipeline markers and spends between $100,000 and $300,000 annually on this program.

- **Mark and Locate (Gas Transmission)** – All customer generated Mark and Locate Tickets for all Gas Transmission, Backbone and Local Transmission pipeline assets. On average, PG&E has spent approximately $4-5 million annually on Transmission level M&L and Standby activities in recent years.

- **Transmission Integrity Management (TIMP)** – PG&E's Transmission Integrity Management Program (TIMP) was formally established in 2004 and was developed to meet the federal requirements set forth in 49 Code of Federal Regulations (CFR), Part 192, Subpart O. The primary goal of TIMP is to identify transmission pipeline segments which meet the federal definition of a High Consequence Area (HCA) and inspect these HCAs using one of the three approved assessment methodologies: In-Line Inspection, Direct Assessment, or Pressure Testing. Based on the DOT definition natural gas transmission pipelines, PG&E has ~5700 miles of natural gas transmission pipelines and ~1000 miles are located in HCAs and receive periodic integrity management assessments. Additionally, PG&E has a total of 988 miles (17%) of pipe retrofitted to accommodate ILI tools as of the end of 2011. PG&E plans to spend approximately $125 million from 2011-2014 on integrity management activities and related pipeline upgrades.

- **Long Seam Validation** – Conducted video inspection of approximately 6 miles of pipe in various locations throughout the transmission system in 2011 (primarily focused on Line 132) and performed cut outs of the sections of pipe with incomplete girth weld penetrations.

- **Records Verification and MAOP Validation** – Retrieved and scanned more than 2.5 million paper documents dating back more than 50 years to validate the MAOP of all pipelines in Class 3 and Class 4 locations and Class 1 and 2 High Consequence Areas (HCAs). As of the end of 2011, PG&E has verified strength test documentation for more than 1,150 miles of HCA pipeline, validated the MAOP for more than 750 miles of high priority pipelines in HCAs without prior strength tests

and is on-track to validate the remaining HCA miles by the end of January, 2012. As a result of this work in 2011, over 40 excavations have been performed and more than 18 anomalies at these excavation locations have been addressed, which included corrosion and pitting, seam flaw and third-party damage on various pipeline components. PG&E will continue MAOP validation for the non-HCA pipelines after the completion of the HCA miles, and PG&E estimates the non-HCA MAOP validation will be completed by early 2013.

- **Pressure Reductions** – PG&E reduced pressure in more than 1,600 miles of transmission pipelines to increase the margin of safety until the MAOP can be validated through actions such as records verification, pressure tests, or pipe replacement. Any interim pressure reduction also considers the potential safety impacts of uncontrolled customer outages along with pipeline integrity safety margins.

- **Strength Tests** – PG&E completed strength tests for more than 160 miles of transmission pipelines in 2011.

- **Pipeline Safety Enhancement Plan (PSEP)** – PG&E proposes to strength test approximately 783 miles of pipelines, replace approximately 186 miles of pipelines and automate 228 valves during Phase 1 of the PSEP (2011 – 2014). Additionally, by the end of 2014, PG&E expects to have a total of 1,480 miles of the gas transmission pipe retrofitted to accommodate ILI tools.