Agenda

• Definition of LUAF
• Calculation of LUAF
• Major LUAF Causes/Components
• PG&E’s LUAF
• PG&E’s Recovery of LUAF
Definition of LUAF

- LUAF = Lost and Un-Accounted For gas
- LUAF is gas that enters the gas system but cannot be accounted for through:
  - Billed deliveries to customers
  - PG&E’s own metered use (“Gas Department Use”)
  - Injections into PG&E or ISP storage facilities
  - Increases in line pack
Calculation of LUAF

• Transportation LUAF is determined by means of a material balance:

  **Total Gas Receipts** (at interconnects with interstate pipelines, other utilities, CA producers, and PG&E and ISP storage facilities)

  LESS: **Total Gas Sendouts** (billed deliveries to customers, PG&E’s own metered use, and injections to PG&E and ISP storage facilities)

  LESS: **Net Increase in Line Pack**

  **EQUALS:** Transportation LUAF

• Storage LUAF is determined by component analysis

• Total LUAF = Transportation LUAF + Storage LUAF
Major LUAF Causes/Components

- **Measurement error** (+ or – *contribution to LUAF*)
  - e.g., interconnect meter over-registers
  - e.g., customer meter under-registers

- **Accounting and billing error** (+ or – *contribution*)
  - e.g., volume-to-energy conversions performed in billing system for non-sophisticated meters may understate amount of energy delivered

- **Energy theft** (+ *contribution*)
  - e.g., customer bypasses its meter

- **Gas losses (emissions)** (+ *contribution*)
  - e.g., leaks, dig-ins, blow-downs, purges, etc.
PG&E’s LUAF

• PG&E’s 2018 GO-112F Report
  – Reporting period: July 2016 – June 2017
  – Total LUAF: 12.6 Bcf
  – 1.4% of total gas receipts
  – Includes 3.1 Bcf of emissions (25% of total)
PG&E’s Recovery of LUAF

• PG&E recovers LUAF and Gas Department Use (GDU) through in-kind “Shrinkage Allowances” specified in PG&E’s Gas Rule 21
  – Users of PG&E’s services pay for LUAF/GDU with volumes of gas, not dollars
  – Rule 21 provides discrete Shrinkage Allowances for:
    • Core distribution (summer and winter)
    • Noncore distribution
    • Backbone transmission (on-system and off-system)
    • Storage

• PG&E requests revisions to its Shrinkage Allowances annually through an advice letter process
  – Transmission and distribution updates effective November 1
  – Storage updates effective April 1
  – Flexibility to forego revisions and/or request updates at other times of the year
PG&E’s Shrinkage Allowances consist of two components:
- “Base Allowance” designed to recover forecast shrinkage costs
- “Adjustment Allowance” designed to collect (or return) shrinkage under- (or over-) collections from previous periods

Example: Backbone Shrinkage Allowance
- Shipper wants to transport 100 units of gas from Malin to PG&E’s citygate
- Backbone Shrinkage Allowance is 1.1% (at receipt point)
- Shipper must deliver 101.112 units to PG&E at Malin
  \[ 100 / (1 - 0.011) = 101.112 \]
- PG&E keeps 1.112 units
- PG&E delivers to shipper 100 units at citygate
• Future LUAF recovery
  – PG&E proposes continuation of the current in-kind Shrinkage Allowances
  – This recovery method has been in place on PG&E’s system since Gas Industry Restructuring was implemented in 1988 and is used by many other gas pipeline companies
  – It provides for near instantaneous replacement of LUAF and GDU volumes by users of PG&E’s transportation and storage services
  – It ensures LUAF and GDU are neither over- nor under-collected
Questions?