Updating SB 1371 Emission Factors

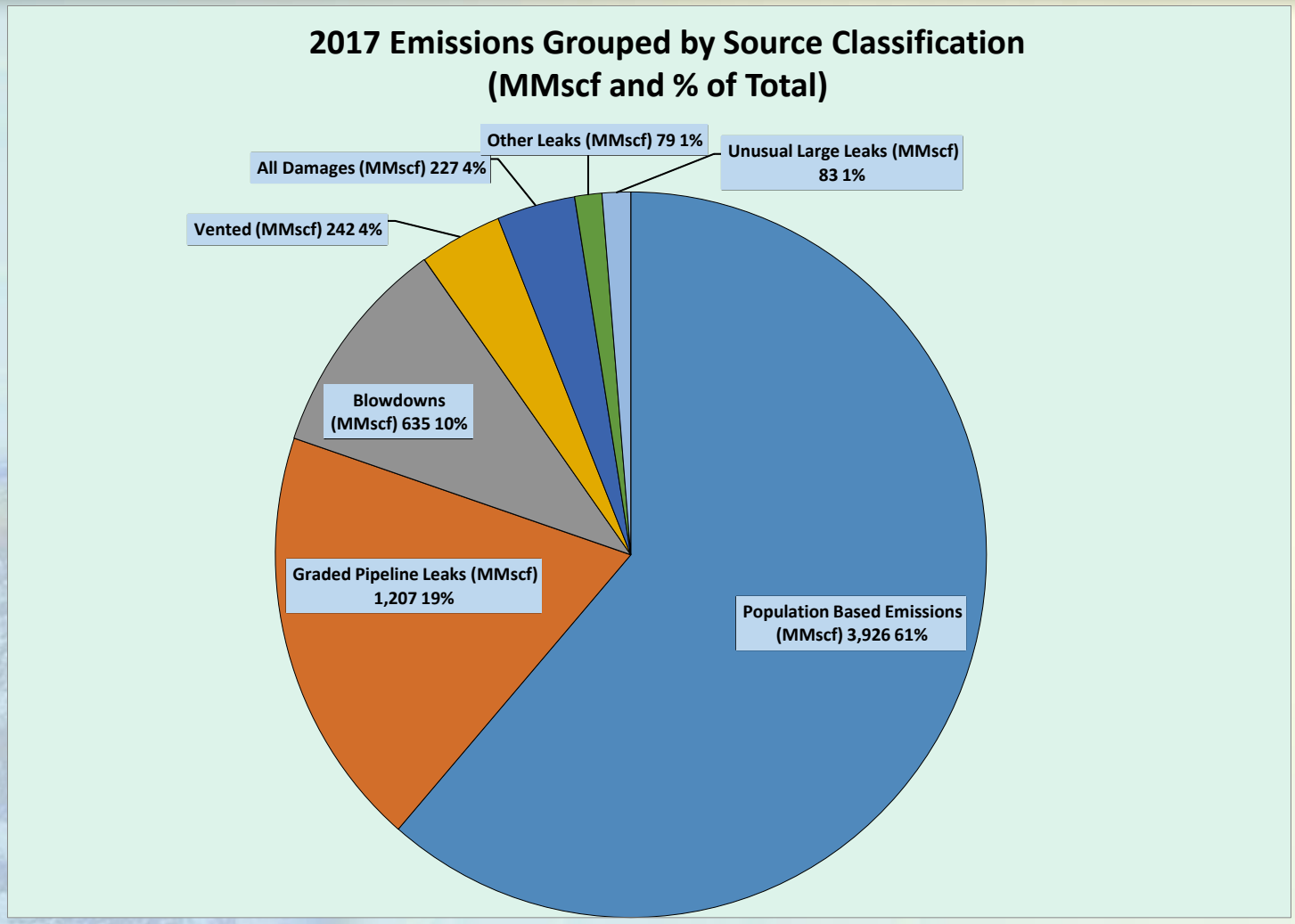
Agenda

- Background
- Residential Gas Customer Meters Study (MSAs)
- Distribution Main & Service Pipelines Study (DM&S)
- Next Steps
- Q & A

Background

- Almost all EFs in SB 1371 were based on the 1996 US EPA/GRI study
- CARB has funded two studies to update California specific EFs
- The studies focused on EFs with significant emission impacts
- Utilities can continue and improve on CARB's efforts

SB 1371 Annual Emissions Report



MSAs Study

- CARB funded GTI ($125 K)
- The objectives:
  - ✓ Update California-specific EF
  - ✓ Determine average MSA leak rate
  - ✓ Test hypothesis: inland vs. coastal MSAs
  - ✓ Identify leak prone components
- Collected 500 MSAs random samples:
  - ✓ 200 MSAs each from SoCal Gas and PG&E
  - ✓ 100 MSAs from SDG&E
- Shared data with individual utility

Coastal Service Territory

Company	Percent of Coastal MSAs	Target Samples
PG&E	21%	42
SoCal Gas	2.4%	5
SDG&E	11%	11

Leak Measurements

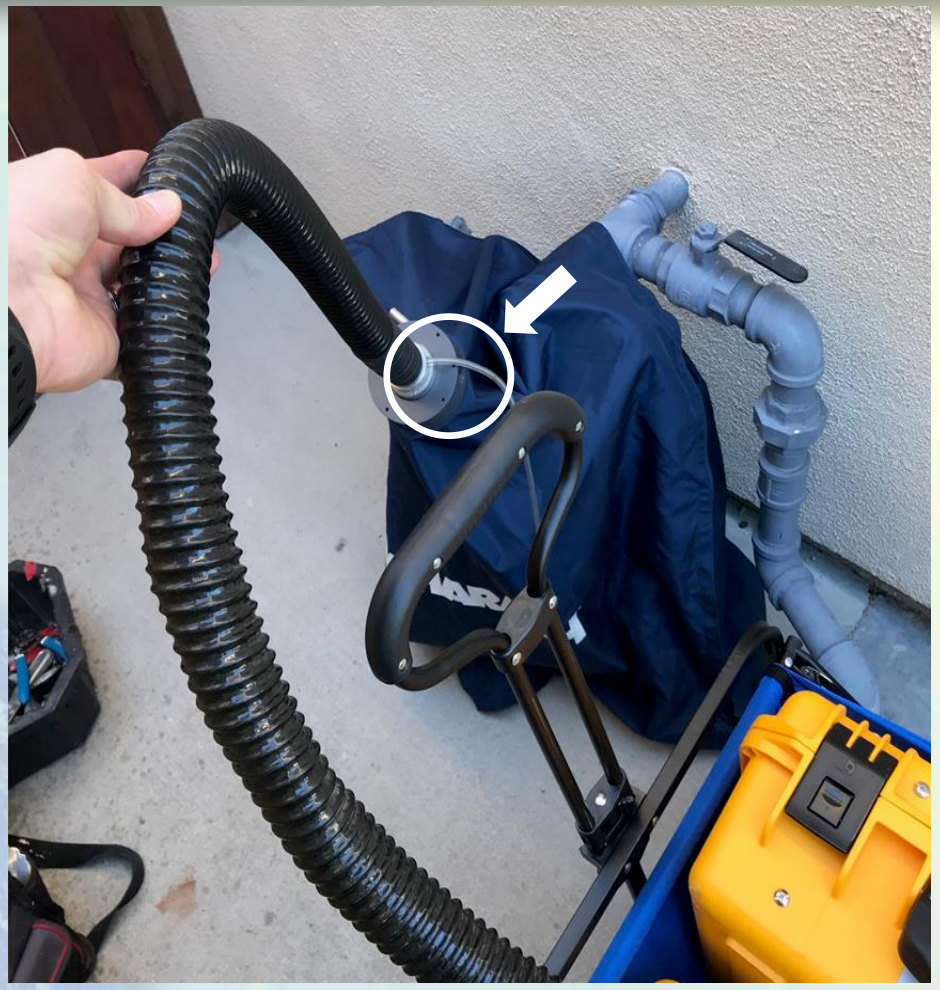
- Quantified NG leaked into the atmosphere:
  - ✓ Detecting methane leaks:
    - CGI Devise (Sensit G2 Gold)
    - Soap bubbles
  - ✓ Measuring methane leak flow rates:
    - Hi-Flow Sampler (Bacharach, Inc., PA)
    - Methane Analyzer (Los Gatos Research, CA)
- Excluding NG purge from the regulators

Handheld CGI Device

Soap Bubbles Test

Hi-Flow Sampler & Methane Analyzer

Quantifying Methane Leaks



The Report Status

- GTI submitted a draft report
- The study met the objectives
- CARB provided comments

DM&S Pipeline Study

- CARB funded GTI ($250 K, completed 2016)
- The objectives:
  - ✓ Update California-specific EFs:
    - Unprotected Steels (Mains & Services)
    - Plastics (Mains & Services)
  - ✓ Correlate below- & above-ground leak measurements
- Leak Measurements:
  - ✓ Flow Meter (below-ground);
  - ✓ Hi-Flow Sampler (above-ground)
- Samples Size:
  - ✓ Total 78 samples, mostly above-ground measurements

Pipeline Data Confirmation

- Pipeline data in the report did not match those from the utility's repair records
- Utilities discovered the discrepancies when repairing the leaks
- All leaks in the samples were completely repaired this year.
- No leak re-measurements were attempted

Several Type of Data Discrepancies

- There are several type of data discrepancies:
  - ✓ Pipeline material type
  - ✓ Pipeline function
  - ✓ Number of leaks
- Discrepancy rates vary by utilities, ranging from 25% to 50%
- CARB requested utilities to provide the repair logs for the changes

Next Steps

- MSAs Study:
  - ✓ Await GTI's revision
  - ✓ Finalize CARB's internal review process
  - ✓ Provide stakeholders to comment before releasing to the public
- DM&S Pipeline Study:
  - ✓ Prepared a new contract with GTI ($20 K)
  - ✓ Revise the report with the new data
- New EFs from both studies may not be ready for the 2018 annual emission reports

Q & A Session

Any questions?