

# SF6 - PG&E's Experience

Sandra Olson  
Sven Thesen



*PG&E Corporation is committed to being an environmental leader by providing safe, economical, and reliable products and services in a responsible and environmentally sensitive manner.*

PG&E has a history of participating in Win-Win voluntary programs:

- Energy Star Program
- 1605b Program
- CA Climate Action Registry

# PG&E Fast Facts



- PG&E covers 70,000 square miles.
- 131,000 miles of electric lines.
- 43,000 miles of natural gas pipelines.
- 4.5 million electric accounts.
- 3.7 million gas accounts.
- 18,400 employees
- Serves 1 in 20 Americans

# Historical Perspective

1998 – Electric deregulation in California

1999 – PG&E fossil generation sold

2000 – Increased demand

# California Energy Crisis

- Projects on hold become critical
- Increased demand requires additional large gas breakers
- Gas breaker repair difficult

# 2002 - Bankruptcy

- Upgrades to electric transmission are funded first
- Repair of leaking gas equipment is deemed highly cost effective and given similar priority

# Team Appointment

- Electric Transmission
- Environmental Affairs

# EPA & PG&E's SF6 MOU

2002 Deadline:

Reduce emissions by 50% compared  
to 1998 base year

# MOU Agreement

2007 Deadline:

Reduce leak rate to ~ 2% of  
SF6 equipment inventory

# Team Challenges:

- Multiple SF6 Vendors at 24 PG&E Maintenance Headquarters
- New Breaker inventories
- Scrapped Breaker inventories
- Attitude

# Simplify

- Attempt 1 equipment supplier (Full? Empty?)
- Attempt “empty” all scrapped breakers

# Simplify

- Educate Operations
- 1 full service SF6 Vendor



# Full Service SF6 Vendor

- Provides all SF6
- Removes all SF6 for recycling
- Subcontracts Leak Detection Program

# One SF6 Vendor:

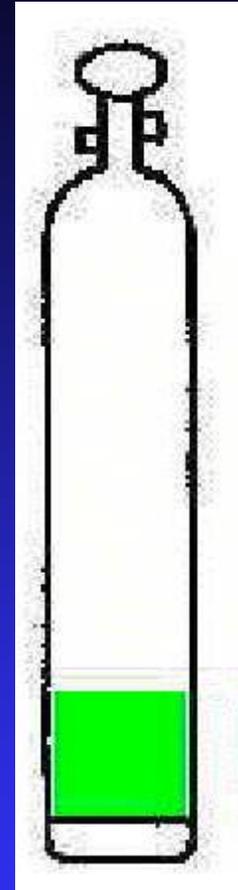
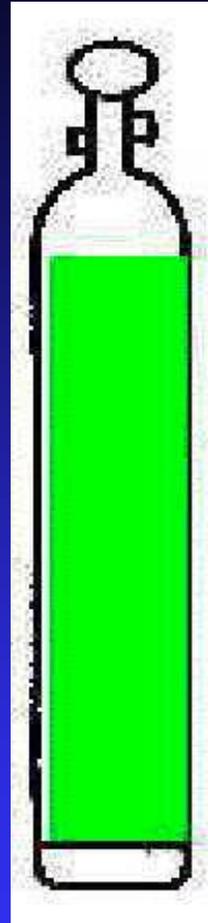
- Reduced Maintenance HQ Inventories
- Vendor floats SF6 cost



# One SF6 Vendor:

- Returns our recycled SF6
- Heel buy-back program

# Heel



# Heels

- Don't pay for heels
- Don't include heel in annual emission calculations

# Leak Detection



# Laser Imaging



# Gas Buggies



# Gas Buggies



# Laser Imaging



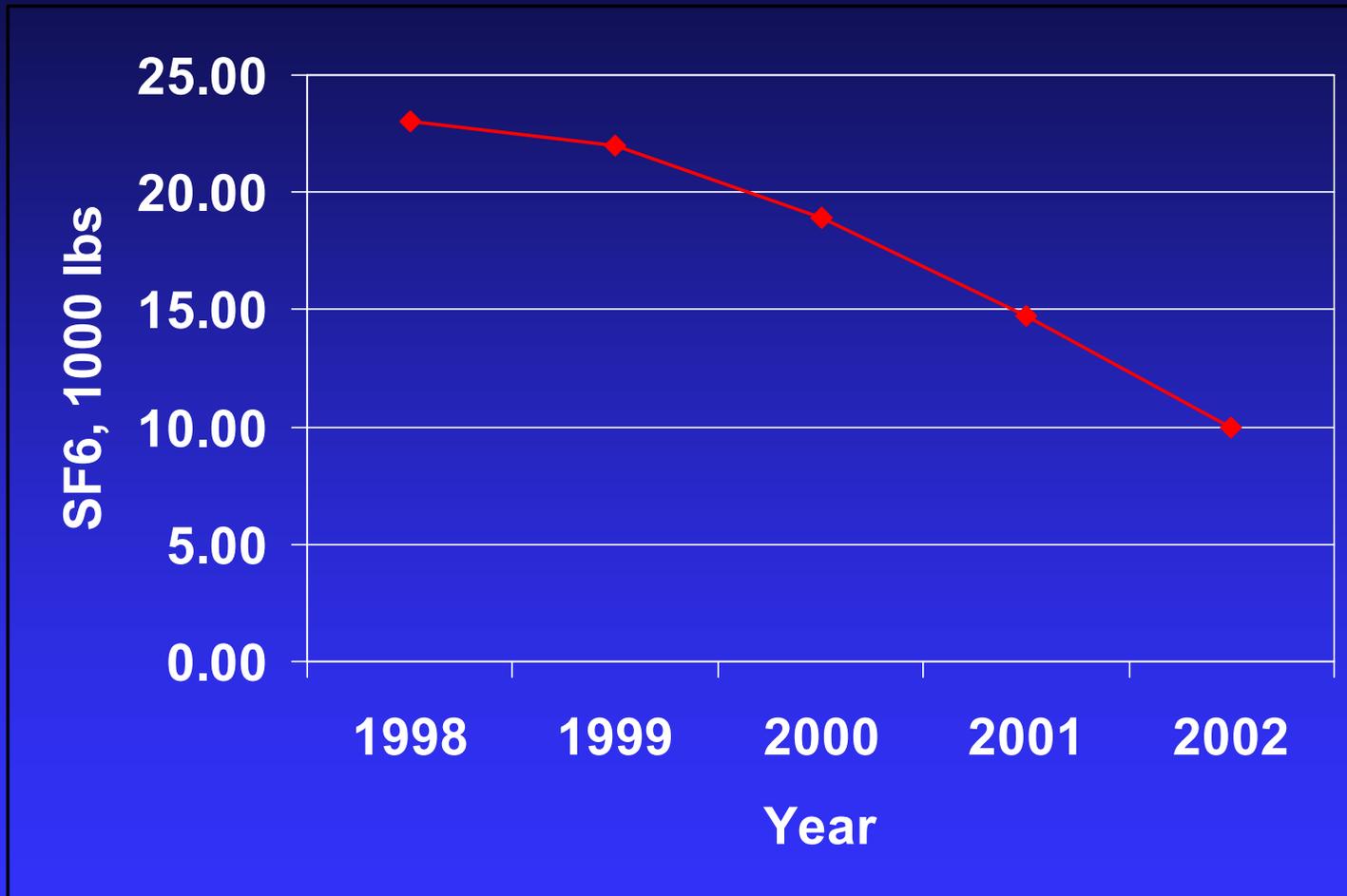
# MOU Side Benefits:

- Public Relations
- Banking GHG Reductions
- Demurrage

# Demurrage

- Cylinder rental fees
- Found “free” orphaned cylinders

# Annual Leak Rate



# Cost Savings

Avoided SF6: ~\$400,000

Program Costs: ~\$100,000

Total Savings: ~\$300,000

# Gained Wisdom

- Learning Curve
- Accuracy Evolution
- Be Open

# New Opportunities:

- Incorporation of Power GEN
- MOUs in Acquisitions, Mergers & Divestitures

# Real Opportunities:

- Replacement for Existing Breakers
- New Breaker Technology

Questions?