## **PG&E Emergency Plan Review**

**Electric Operations Emergency Management** 





## Life Safety

- Sign in Sheet
- Evacuation Plan and Assembly Point
- 911 Notification
- CPR Certified
- Earthquake Response



## Objectives

To provide an overview of PG&E's Electric Emergency Response plans and to provide an opportunity for questions and feedback in compliance with Public Utility Code (PUC) 768.6



## Agenda

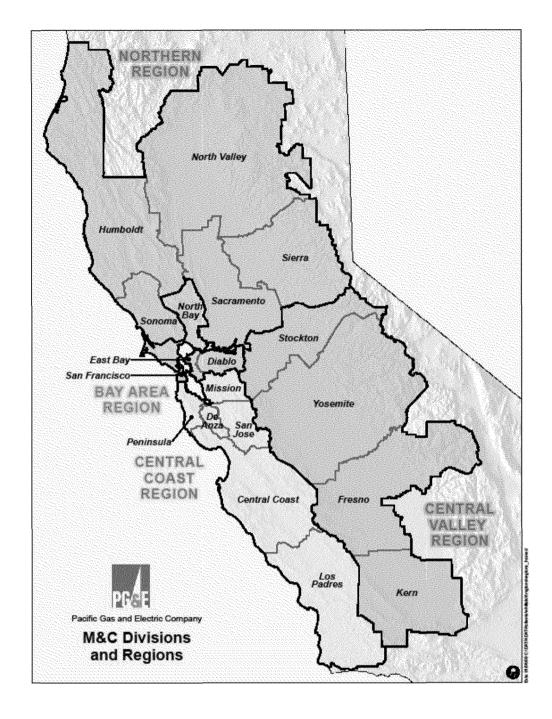
- Welcome and Introductions
- Overview of requirements of PUC 768.6
- PG&E's Electric Emergency Operations Plan
- 2013 Fire Prevention Plan
- Questions



Emergency Preparedness

### PG&E

- 4 Regions, 19 Divisions, 70,000 square miles, 113,000 miles of overhead line
- Electric system is very sensitive to weather
  - 30,000 unplanned power outages per year wind, rain, snow, lightning, heat are primary concerns
  - each division has a unique outage climatology



## Overview of PUC 768.6







**Requires PG&E to:** 

PR&F

- Solicit counties and cities within the service territory for ۲ points of contact (POC) to review all electric emergency plans
- **Provide these POCs with copies of electric emergency** ۲ plans to review
- Hold public meetings with the POCs to obtain feedback ۲ and answer questions about the plans
- Notify the CPUC of the schedule of meetings ۲
- File a report confirming the completion of the scheduled ۲ meetings by April 1<sup>st</sup>
- Complete this process every 2 years ۲
- Requires the CPUC to update General Order (GO) 166 ۲



- Initiated request for the POC's from all city and counties within the service territory
- Sent electronic copies of EEOP and Fire Prevention Plans (with minor redactions)
- Scheduled 8 public meetings to be held throughout the service territory:

| Date           | Place       | Hotel                | Hotel Street         | City            | Time      |
|----------------|-------------|----------------------|----------------------|-----------------|-----------|
| Thursday, 2/28 | San Ramon   | San Ramon Marriott   | 2600 Bishop Ranch Dr | San Ramon       | 0900-1200 |
| Tuesday, 3/5   | Santa Rosa  | Santa Rosa Courtyard | 175 Railroad Street  | Santa Rosa      | 0900-1200 |
| Thursday, 3/7  | Salinas     | Holiday Inn Express  | 195 Kern Street      | Salinas         | 0900-1200 |
| Tuesday, 3/12  | Fresno      | LM-Holiday Inn       | 1055 Van Ness Ave    | Fresno          | 0900-1200 |
| Thursday, 3/14 | Bakersfield | Hilton Garden Inn    | 3625 Marriott Dr     | Bakersfield     | 0900-1200 |
| Thursday, 3/14 | Sacramento  | Red Lion Woodlake    | 500 Leisure Lane     | Sacramento      | 0900-1200 |
| Tuesday, 3/19  | SLO         | Courtyard SLO        | 1605 Calle Joaquin   | San Luis Obispo | 0900-1200 |
| Tuesday, 3/19  | Redding     | Red Lion             | 1830 Hilltop Dr      | Redding         | 0900-1200 |

- Meetings are held in public venues to facilitate access
- Meeting schedule and confirmation of the completion must be communicated to the CPUC by 4/1/2013

# **Operation Plan**





## **Electric Emergency Operations Plan**

- **1 Emergency Operations Plan Overview**
- **2 Emergency Plan Activation**
- **3 Emergency Management Organization (EMO)**
- **4 Emergency Response Process** 
  - 4.1 Readiness
  - 4.2 Pre-Event
  - 4.3 Assessment, Restoration and 911 Emergency Response
  - 4.4 Resource Management Process
- **5** Communications
- 6 Performance Indicators
- 7 Training and Exercises
- 8 After-Action Reports, Event Logs and Records
- 9 OIS/OMT Workaround Process



- Protect health and welfare of the public, PG&E responders and other response personnel
- Protect property (both the public and utility)
- Safely restore gas and electricity
- Keep customers, local/state agencies, government reps, news media, and others informed
- Re-establish critical business functions and move towards business as usual.



## **PG&E's Emergency Levels**

|   |   | Activation Matrix   |   |
|---|---|---|---|
|   | Level 1   | Level 2   | Level 3   |
| Description                             | Local Incident<br>Day to Day                              | OEC/REC Activation  | EOC Activation  |
| Incident                                | Local Incidents   | Division/Region Wide Incident   | Multiple Divisions/Region wide Incidents and<br>High Profile Events   |
|   |   | Requires resources beyond routine 24/7 operations   | Major storms, wildfire, flooding, earthquake,<br>pandemic, DCPP incident, terrorist attack, major<br>media event              |
| DSO SOPP MODEL                          | CAT 1   | CAT 2 & 3   | Cat 4 & 5   |
| FORECAST                                | Assume normal<br>outage and crew                          | Triggers weather advisories, watches or warnings, crew and Tman estimates are forecast                      | Triggers weather advisories, watches or<br>warnings, crew and Tman estimates are forecas                                      |
| Outage Conditions                       | expectations  |   |   |
| Work Resources                          | Local Resources<br>Resources moved<br>within the Division | Resources moved within the Region<br>Resources may move between Divisions within the<br>Region <sup>1</sup> | Resources moved between Regions<br>Significant need for outside resources such as;<br>IBEW contractors, Mutual Aid (CUEA/WEI) |
| Electric System I                       | ncident   |   |   |
| Sustained Outages                       | N/A   | SEE OEC Activation Guidelines   | Multiple Divisions and Regions Impacted   |
| Customers Out                           | N/A   | >30,000 customers out at one time   | >100,000 customers out at one time  |
| Outage Restoration<br>Duration Expected | 1 Day   | 1-3 Days  | >3 Days   |
| Load Shed-EEP                           | N/A   | Localized EEP   | Localized EEP/System-wide EEP Event   |
| Materials Inventory                     | Existing inventory adequate                               | Forecasted storm inventory may or may not be<br>adequate. May need escalated support to procure<br>material | Storm inventory monitoring requires escalating<br>support to procure and deliver materials                                    |
| News Media Incic                        | lent  |   |   |
| Customer Experience                     | Normal  | Increased attention with a Division or several Regions with potential national news attention               | Increased attention local or Company-wide with<br>national news exposure (e.g. manhole explosion<br>Super Bowl, Election Day) |

<sup>1</sup> Resource requests across Divisions within a Region will be managed by the Logistics Chiefs within each Division or Region. Once resources arrive they will be tracked by the respective Resource Unit within the Planning Section. In the event the Resource Unit has not been activated, resource tracking would become the responsibility of the Plans Section Chief or the Incident Commander.



#### Emergency Preparedness

### **Emergency Preparedness**

- Storm Outage Prediction Project (SOPP)
- 10 Day Weather Forecast
- Severe Weather Notifications
- Storm briefings
- Drill scenario preparation
- Historical analysis







## Adverse Weather at PG&E

- PG&E is exposed to risk during adverse weather
  - Power Outages / Customer Satisfaction / Performance Metrics
  - Risk of safety incidents
  - Financial risk (cost of restoration can be significant, cost of over preparing can also be significant)
  - Liability risk increases
- What are the main adverse weather factors at PG&E?

wind, rain, snow, lightning, heat

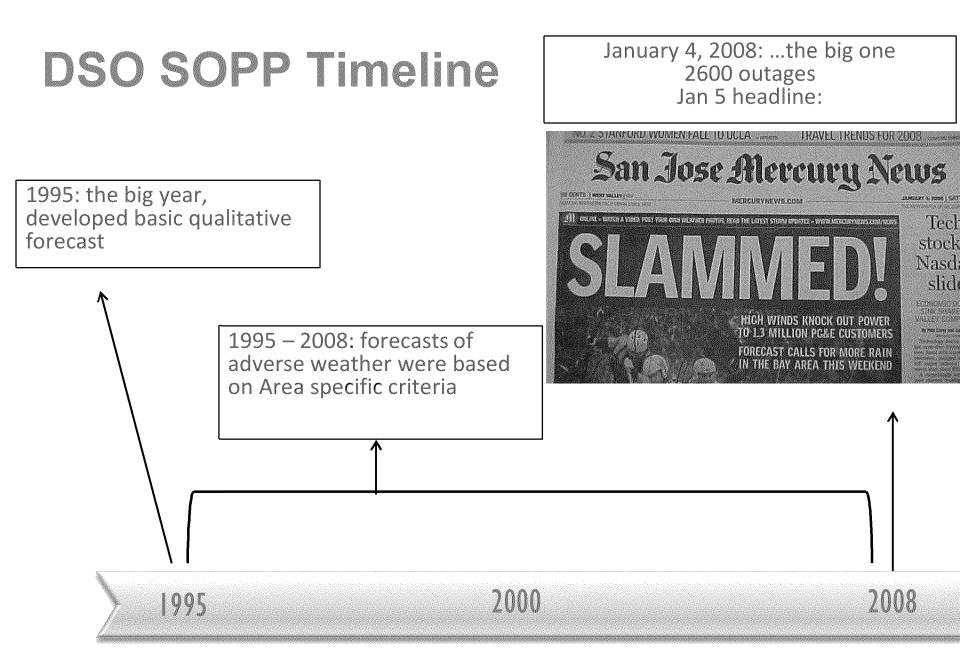
(Each has its own characteristics/impacts)

• What is the seasonal climatology of adverse weather risk? Where?

Winter storm activity in the Santa Cruz mountains versus wildland fire risk in the Chico Area

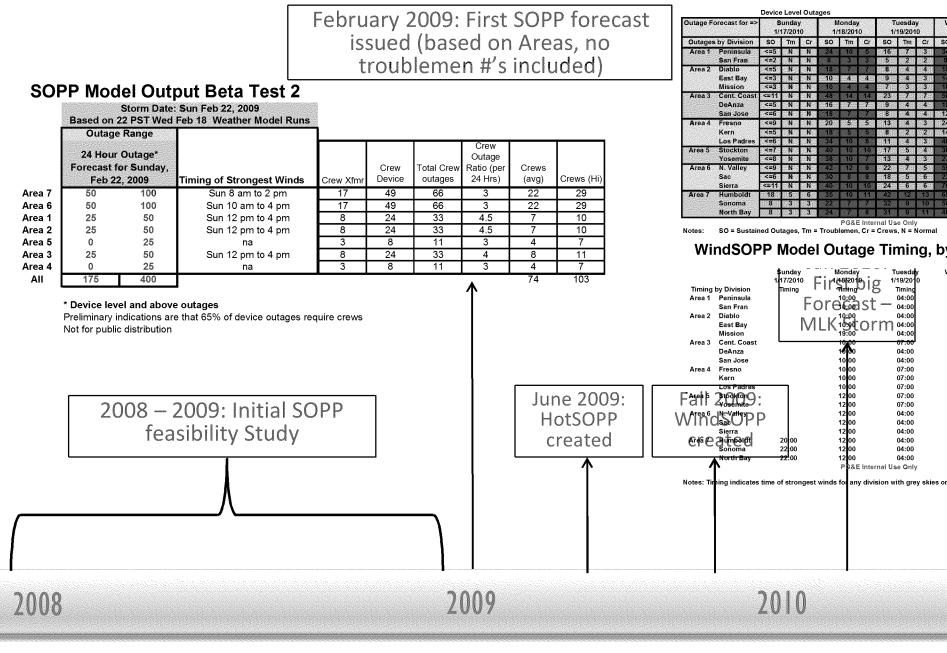
## Storm Outage Prediction Project (SOPP)







Issued: Sunday, January 17, 2010 07:49

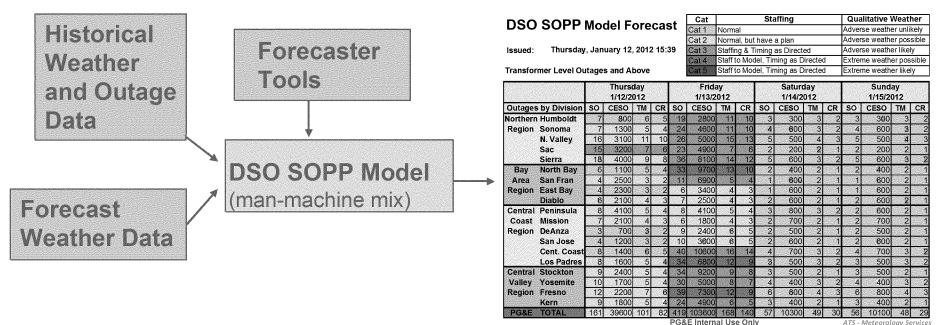




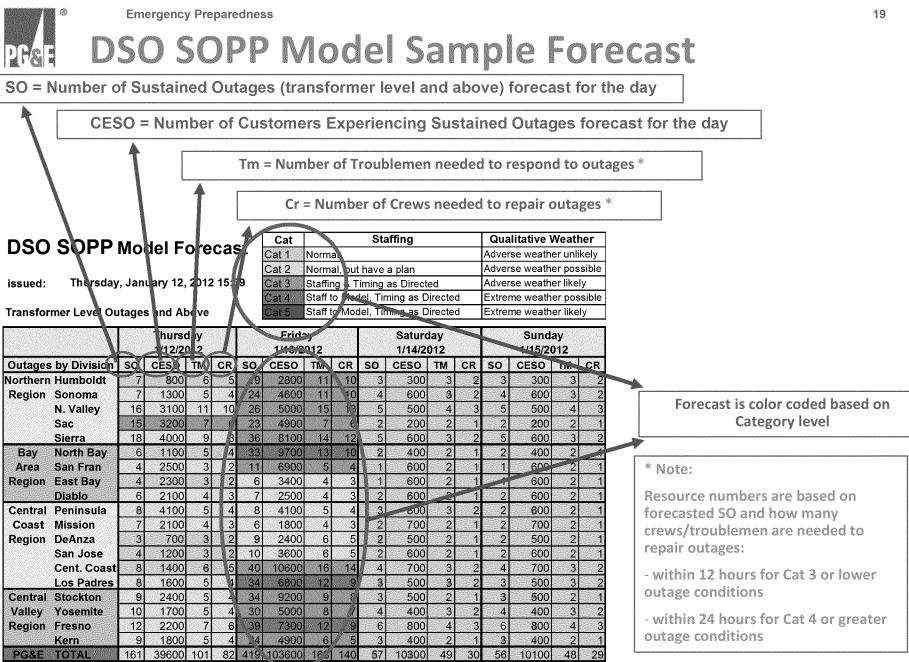
## DSO SOPP Model

#### Distribution System Operations - Storm Outage Prediction Project - Model

Developed to predict sustained outage counts, customer outage counts, timing of outages, and resource requirements necessary for restoration in order to better prepare for and mitigate total risk from storms



stes: SO = Sustained Outages, CESO = Customers Experiencing Sustained Outages, TM = Troublemen, CR = Crew



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Notes: SO = Sustained Outages, CESO = Customers Experiencing Sustained Outages, TM = Troublemen, CR = Crev



### **DSO SOPP Model Sample Forecast**

Timing indicates forecasted timing of most intense outage producing weather (rain, wind, snow, etc) for any division at Cat 2 or above

#### **Colors correspond to the Category forecast**

#### **DSO SOPP Model Forecast Timing, by Division** Thursday Friday Saturday Sunday 1/12/2012 1/13/2012 1/14/2012 1/15/2012 **Timing by Division** Timing Timing Timing Timing Northern Humboldt 0:00 - 6:00 14:00 - 24:00 0:00 - 6:00 **Region Sonoma** 14:00 - 24:00 0:00 - 6:00 N. Valley 14:00 - 24:00 0:00 - 6:00 Sac Sierra 14:00 - 24:00 0:00 - 6:00 Bay North Bay 0:00 - 8:00 16:00 - 24:00 0:00 - 8:00 San Fran Area Region East Bay 0:00 - 8:00 0:00 - 8:00 16:00 - 24:00 Diablo 16:00 - 24:00 Central Peninsula 0:00 - 8:00 16:00 - 24:00 0:00 - 8:00 Coast Mission 0:00 - 8:00 **Region DeAnza** 0:00 - 8:00 San Jose 0:00 - 10:00 Cent. Coast 20:00 - 24:00 0:00 - 10:00 Los Padres 20:00 - 24:00 0:00 - 12:00 **Central Stockton** Valley Yosemite 20:00 - 24:00 0:00 - 12:00 **Region Fresno** 20:00 - 24:00 0:00 - 12:00 Kern 20:00 - 24:00 0:00 - 12:00

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Note: Timing reflects the most intense period of outage producing weather for any division at Cat 2 or above



### **DSO SOPP Model Sample Forecast**

#### DSO SOPP Dissemination

PRSE

- The DSO SOPP forecast is delivered each morning via email
- >3500 recipients
- Also posted to the PG&E intranet
- If adverse weather is imminent, afternoon and evening forecasts are produced

|   |                        | Davit in C                                  |  | and Market F   |                         | 1                                |   | (a)      |
|---|------------------------|---|--|--|-------------------------|----------------------------------|---|----------|
|   | 9 ÷                    |   |  | ions Weather Fo  | ecast: Friday           | March 30 – Sund                  | ay April 8                              |          |
| Messag                                      | je Developei           | McAfee B-                                   |  |  |                         |                                  |   | <u> </u> |
| , Ignore                                    | 2 - D                  |   |  | Committe   |                         | Mark Unrea                       |   |          |
| Junk - Delete                               | Reply Reply            | Forward 🖉 🗸                                 | To Mana الله To Mana                           | -  | Move                    | Categorize                       | Translate                               | Zoom     |
| Delete                                      | All<br>Resp            | and   | Ouick 5  | and the second | Move                    | Taos                             | Editing                                 | Zoom     |
| om: Reda                                    |                        |   |  |  |                         |                                  | Sent: Fri 3/                            |          |
|   | bution System O        | perations Weath                             | er Forecast: F                                 | niday March 30 –   | Sunday April 8          | , 2012                           |   |          |
| Message 🔍 D                                 | SOSOPP_BB_Ima          | ge_2012-03-30-0                             | 723.png (92 KE                                 | 5)   |                         |                                  |   |          |
| Distribution Syste                          | m Onerstions M         | asther Forerast                             | · Friday Mare                                  | h 30 Sunday A  | neil 8 2042             |                                  |   |          |
| Forecast Discussio                          |                        | WELTON I WILWEAT                            | s i indicay interior                           | n oo aanaay m  | orn o, kork             |                                  |   |          |
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| the next storm appro                        |                        | igion wan ary coni                          | mons expected                                  | I SOUTH OF 8 SERIES  | Rosa to Reno #          | e. onowers will tag              | er on mis alternoon                     | Detote   |
|   |                        | 200482040000000000000000000000000000000     | to impact Humb                                 | oldt Division with in  | creasing south          | vinds and rain. Thi              | s storm system will th                  | £3       |
| sweep across the Se<br>the system, gusty we |                        |   | edacted  |  |                         |                                  | Yosemite line. Foll<br>day aftemoon, pr | lowing   |
| Northern Region, Sr<br>4000' south by Satu  |                        | ou III - L                                  | tribution Sv                                   | sten Operatio  | ne Wieather F           | overact: Frid                    | ay to 3000' north in re not expected a  | and      |
| time.                                       | noay evening. Line     |   | Redacte  |  | for the balance read of | table factorization in a start i | i le not expected a                     | 10405    |
| Brisk northwest wind                        | is will develop behi   | VX So                                       |  | farch 30, 2012   | 07:36                   |                                  | ng further south in                     | ito the  |
| San Joaquin on Sur                          | nday with the possi    | bility of reaching o                        | utage producing                                | g thresholds.  |                         |                                  | -                                       |          |
|   |                        |   |  |  |                         |                                  | y afternoon through                     |          |
| morning. A weak sy<br>dry conditions return |                        | ugh on Tuesday (                            | or Wednesday n                                 | lext week with a ch  | ance of light shi       | wers continuing th               | rough the week and (                    | possible |
| -,  |                        |   |  |  |                         |                                  |   |          |
| DSO SOPP M                                  | odel Forecast          | Cat<br>Cat Normal                           | Staffing                                       | Qualitative Weathe<br>Adverse weather unlik  |                         |                                  |   |          |
| Issued: Friday, 3                           | darch 30, 2012 07:23   | Cet 2 Normal, but 1<br>Cet 3 Staffing & Ter | ring as Directed                               | Adverse weather possi<br>Adverse weather likely  |                         |                                  |   |          |
| Transformer Level Outa                      |                        |   | H. Timing as Directed<br>H. Timing as Directed |  |                         |                                  |   |          |
|   | Friday<br>3/30/2012    | Saturday<br>3/31/2012                       | Sunday<br>4/1/2012                             | Monday<br>4/2/2012   | 7                       |                                  |   |          |
| Outages by Division 5<br>Northern humboldt  | CISO TM CR 5           | CESO IM GR                                  | 0 CESO TM C                                    | R 50 CES0 TM 0   | R                       |                                  |   |          |
| Region Sonoma<br>N. Valley                  | 4 600 3 2              | 10 790 10 10<br>21 4000 16 13               | 8 900 5<br>5 500 4                             | 4 4 600 3  |                         |                                  |   |          |
| Sec.  | 4 400 3 2<br>7 800 4 3 | 1700 5 4                                    | 3 300 2<br>5 600 3                             | 400 3  | 2                       |                                  |   |          |
| Bay North Bay<br>Area San Fran              | 4 800 3 2<br>3 600 2 3 | 10 2300 7 6<br>3 1700 3 2                   | 5 1000 4<br>1 600 2                            | 2 3 600 2<br>1 1 600 2   | 2                       |                                  |   |          |
| Region East Bay<br>Diable                   | 1 600 2 1<br>3 900 2 1 | 6 3400 4 3<br>8 2800 5 4                    | 3 1/00 3                                       | 2 1 600 2 3 900 2  |                         |                                  |   |          |
| Central Peninsula<br>Coast Mission          | 2 600 2                | 9 4600 6 5<br>5 1500 3 2                    | 1 800 2<br>2 700 2                             | 2 2 600 2  |                         |                                  |   |          |
| Region DeAnze<br>Sen Jose                   | 2 800 2 100            | 2307  | 3 700 3  | 2 2 500 2  | 1                       |                                  |   |          |
| Cert, Coast                                 |                        | 2903 8 7                                    | 7 1200 5                                       | 4 6 1000 5   | 4                       |                                  |   |          |

## DSO SOPP Model Performance

- The DSO SOPP Model helps PG&E more efficiently prepare for adverse weather ...but only if outage forecasts are accurate
- How has the model performed in recent events?





## DSO SOPP Model Performance

### 3/30/2012 forecast for 3/31/2012

1400 Update: Distribution System Operations Weather Forecast: Friday March 30 – Sunday April 8, 2012

1400 Update Highlights:

- No significant changes to forecast
- A vigorous frontal system will sweep across the northern half of the Service Area Saturday morning bringing rain and south winds 30 to 40 mph, with higher gusts likely over elevated terrain
- Winds will shift to westerly and remain gusty throughout the day Saturday
- Main impacts still appear to be focused on Northern Region, with less certain impacts for areas south of a Bay Area to
  Tahoe line
- Snow levels will be initially high then lower to 3000 north and 4000 feet south by Saturday afternoon, however little snow accumulation is expected at the lower elevations and low snow outage conditions are not anticipated
- Chance of thunderstorms Saturday, most likely during the afternoon in Northern Region
- Breezy northwest winds 25 to 35 mph are possible Sunday along the coast, through the Bay Area, and down the San Joaquin Valley
- · Fair weather with lighter winds expected Monday

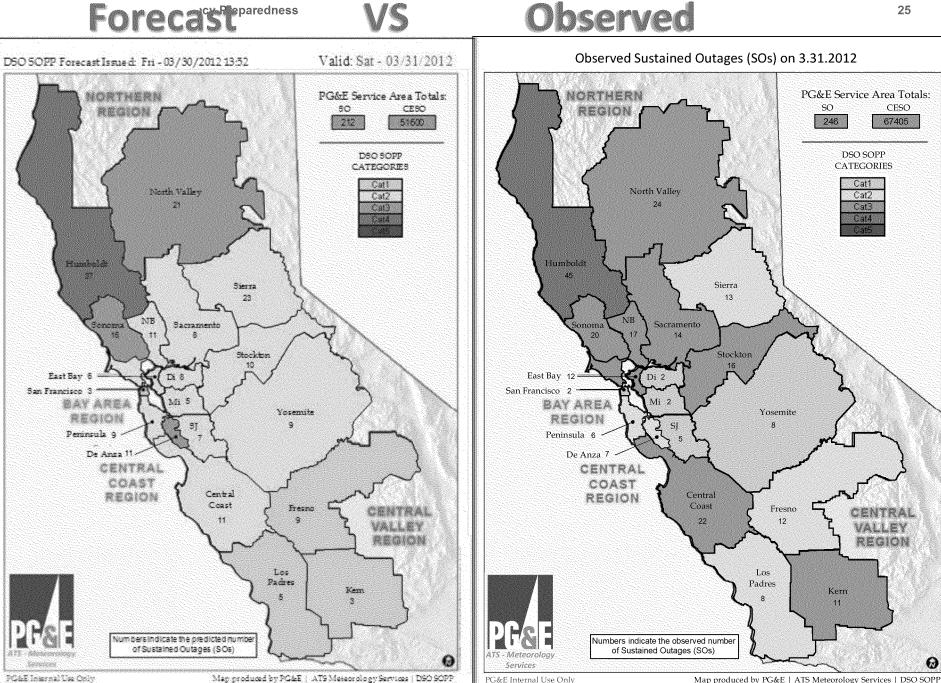
ATS – Meteorology Services



## Emergency Preparedness DSO SOPP Model Performance

### 3/30/2012 forecast for 3/31/2012

| )SO     | SOPP N        | Лоd     | lel Fo          | orec | ast                          |         | Cat<br>Cat 1<br>Cat 2 | Norma   |       |         | affing<br>• a plan        |           |                 | Adver           | litative<br>se weath<br>se weath   | ier un            | likely                   |        |                                |            |             |                       |
|---------|---------------|---------|-----------------|------|------------------------------|---------|-----------------------|---------|-------|---------|---------------------------|-----------|-----------------|-----------------|--|-------------------|--------------------------|--------|--------------------------------|------------|-------------|-----------------------|
| sued:   | ÷ .           |         | ch 30, 20       |      | 3:52                         |         | Cat 3<br>Cat 4        | Staff t | :o Mo | del, T  | as Direc<br>iming as      | Direct    |                 | Adver<br>Extrer | se weath<br>ne weatl   | ier lik<br>ner po | ely<br>ossible           |        |                                |            |             |                       |
| ansform | mer Level Out | tages : | Frida<br>3/30/2 | iy   |                              |         | Satur<br>3/31/2       | day     | .o mo |         | iming as<br>Sund<br>4/1/2 | lay       | .eo             | Extrem          | Monday         Elevated Outage activity was fore           4/2/2012         Levated Outage activity was fore     |                   |                          |        |                                |            |             |                       |
| Intanac | by Division   | 50      | CESO            |      |                              | so      | CESO                  |         | CR    | SO      | CESO                      | TM        | CR              | so              | CESO   |                   | CR                       |        | begin Sa                       | aturda     | y morning   | in the north and      |
|         | Humboldt      | 4       | 500             | 1.01 | 2                            | 37      | 5500                  | 15      | 12    |         |                           | 4         | 2               | 4               | 500  | 4                 | 3                        |        | spread s                       | south      | during the  | day                   |
|         | Sonoma        | 4       | 600             | 3    | $\frac{1}{2}$                | 16      | 3100                  | 10      | q     | 6       | 1                         | 5         | 4               | 4               | 600  | 3                 | $\tilde{2}$              |        | 14                             |            | 96 <b>7</b> | þ                     |
|         | N. Valley     | 6       | 500             | 5    |                              | 21      | 4000                  | 15      | 13    | 5       |                           | 4         | 3               | 6               | 500  | 5                 |                          |        |                                |            |             |                       |
|         | Sac           | 4       | 400             | 3    |                              | 8       | 1700                  | 5       | 4     | 3       |                           | 2         | 1               | 4               | 400  | 3                 |                          |        |                                | 7          |             |                       |
|         | Sierra        | 7       | 800             | 4    | 3                            | 23      | 5200                  | 13      | 11    | 5       |                           | 3         | 2               | 6               | 700  | 4                 |                          |        |                                | /          |             |                       |
| Вау     | North Bay     | 4       | 800             | 3    | 2                            | 11      | 3200                  | 8       | 7     | 5       |                           | 4         | 3               | 3               | 600  | 3                 | 2                        |        | $\frown$ /                     |            |             |                       |
| Area    | San Fran      | 1       | 600             | 2    | 1                            | 3       | 1700                  | 3       | 2     | 1       | 600                       | 2         | 1               | 1               | 600  | 2                 | 1                        | ct Tim | ha hu ivi                      | cion       |             |                       |
| egion   | East Bay      | 1       | 600             | 2    | 1                            | 6       | 3400                  | 4       | 3     | 3       | 1700                      | 3         | 2               | 1               | 600  | 2                 | 1                        | SUIII  | ing, by Divi                   | .51011     | -           |                       |
|         | Diablo        | 3       | 900             | 2    | 1                            | 8       | 2800                  | 5       | 4     | 3       | 900                       | 2         | 1               | 3               | 900  | 2                 | 1                        | 1      | Saturday                       |            | Sunday      | Monday                |
| entral  | Peninsula     | 2       | 600             | 2    |                              | 9       | 4600                  | 6       | 5     | 3       |                           | 3         | 2               | 2               | 600  | 2                 |                          |        | 3/31/2012                      | V          | 4/1/2012    | 4/2/2012              |
| bast    | Mission       | 2       | 700             | 2    |                              | 5       | 1500                  | 3       | 2     | 2       |                           | 2         | 1               | 2               | 700  | 2                 |                          |        | Timing                         |            | Timing      | Timing                |
| egion   | DeAnza        | 2       | 500             | 2    |                              | 11      | 2900                  | 7       | 6     | 3       |                           | 3         |                 | 2               | 500  | 2                 |                          |        | 04:00 - 16:00                  |            |             |                       |
|         | San Jose      | 2       | 600             | 2    |                              | 7       | 2500                  | 4       | 3     | 3       |                           | 2         | A STREET STREET | 2               | 600  | 2                 |                          |        | 06:00 - 20:00<br>08:00 - 16:00 |            |             |                       |
|         | Cent, Coast   | 6       | 1000            | 5    |                              | 11      | 2900                  | 8       | 7     | 7       | 1200                      | 5         | 4               | 6               | 1000   | 5                 |                          |        | 08:00 - 16:00                  |            |             |                       |
|         | Los Padres    | 4       | 600             | 3    | and the second second second | 5       | 800                   | 4       | 3     | 5       |                           | 4         | 3               | 4               | 600  | 3                 |                          |        | 10:00 - 22:00                  |            |             |                       |
|         | Stockton      | 5       | 800             | 3    |                              | 10      | 2700                  | 5       | 4     | 6       |                           | 4         | 3               | 5               | 800  | 3                 | 1                        |        | 08:00 - 20:00                  |            |             | -                     |
|         | Yosemite      | 6       | 700             | 3    |                              | 9       | 1500                  | 5       | 4     | 8       |                           | 4         | 3               | 6               | 700  | 3                 |                          |        | 00.00 - 20.00                  | +          |             |                       |
| egion   | Fresno        | 8       | 1100            | 5    |                              | 9       | 1200                  | 5       | 4     | 10      |                           | 6         | 5               | 8               | 1100   | 5                 |                          |        | 08:00 - 20:00                  |            |             |                       |
|         | Kern          | 3       | 400             | 2    |                              | 3       | 400                   | 127     | 1     | 4<br>87 |                           | 3         | 2               | 3               | 400  | 2<br>57           | a state so a state serve |        | 08:00 - 20:00                  |            |             |                       |
| G&E     | TOTAL         | 74      | 12700           | 5/   | 38                           | AND     | E Intern              |         | 104   |         | 16000                     | 65        |                 | 6               | <u>12400</u><br>leteorolo  |                   |                          |        | 08:00 - 20:00                  |            |             |                       |
| tes:    | SO = Sustaine | d Out:  | ares Ci         | :90= | Cust                         |         |                       |         |       |         | hitages                   | TM = 1    |                 |                 |  |                   | 101663                   |        | 08:00 - 20:00                  |            |             |                       |
|         | oo oasaate    |         |                 |      |                              | 0221022 | , million             |         |       |         | Treases                   | gion      |                 |                 |  |                   |                          |        | 08:00 - 20:00                  |            |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         |                           | . <b></b> |                 | Jose            |  |                   |                          |        | 10:00 - 20:00                  |            |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         |                           |           |                 | t. Coas         | :+   |                   |                          |        | 10:00 - 24:00                  | +1         |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         |                           |           |                 | Padres          |  |                   |                          |        |                                | 11-        |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         | Ce                        | intral    |                 |                 |  |                   |                          |        | 12:00 - 18:00                  | 1/         |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         | Sec. Sec.                 | alley     |                 |                 |  |                   |                          |        | 14:00 - 24:00                  | 1          |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         | 1.000                     | gion      |                 |                 |  |                   |                          |        |                                | 1          |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         |                           |           | Kerr            |                 |  |                   |                          |        | /                              |            |             |                       |
|         |               |         |                 |      |                              |         |                       |         |       |         |                           |           |                 |                 | and the second |                   |                          | PC     | E Internal Use On              | * <b>*</b> |             | ATS - Meteorology Ser |



Map produced by PG&E | ATS Meteorology Services | DSO SOPP

#### Actual Outages Observed from 03/26/2012 - 04/01/2012

| ATS - Meteorology<br>Services | Mon - 3 | /26/12 | Tue - 3, | /27/12 | Wed - 3, | /28/12 | Thu - 3/ | /29/12 | Fri - 3/: | 30/12 | Sat - 3/ | 31/12 | Sun - 4/ | /1/12  |               |
|-------------------------------|---------|--------|----------|--------|----------|--------|----------|--------|-----------|-------|----------|-------|----------|--|---------------|
|                               | SO      | CESO   | SO       | CESO   | SO       | CESO   | SO       | CESO   | so        | CESO  | SO       | CESO  | SO       | CESO   |               |
| Humboldt                      | 9       | 2042   | 37       | 4049   | 9        | 72     | 8        | 675    | 6         | 89    | 45       | 5333  | 10       | 176  | Humboldt      |
| Sonoma                        | 2       | 16     | 18       | 632    | 6        | 134    | 1        | 1      | 7         | 301   | 20       | 4686  | 5        | 985  | Sonoma        |
| North Valley                  | 6       | 643    | 5        | 319    | 18       | 1354   | 1        | 61     | 4         | 2068  | 24       | 4452  | 3        | 157  | North Valley  |
| Sacramento                    | 8       | 314    | 7        | 591    | 17       | 717    | 2        | 225    | 8         | 1800  | 14       | 2049  | 6        | 65   | Sacramento    |
| Sierra                        | 2       | 59     | 3        | 1234   | 7        | 205    | 3        | 216    | 3         | 39    | 13       | 2736  | 5        | 251  | Sierra        |
| North Bay                     | 2       | 159    | 18       | 1628   | 2        | 186    | 1        | 149    | 1         | 1     | 17       | 8719  | 3        | 211  | North Bay     |
| San Francisco                 | 1       | 7      | 3        | 450    | 0        | 0      | 0        | 0      | 1         | 50    | 2        | 1280  | 1        | And and a state of the state of | San Francisco |
| East Bay                      | 2       | 92     | 2        | 613    | 2        | 87     | 0        | 0      | 2         | 2553  | 12       | 7053  | 4        | 255  | East Bay      |
| Diablo                        | 1       | 8      | 5        | 2898   | 4        | 376    | 3        | 725    | 2         | 219   | 2        | 1782  | 1        | 18   | Diablo        |
| Peninsula                     | 5       | 804    | 5        | 337    | 3        | 17     | - 7      | 3227   | 1         | 4598  | 6        | 1814  | 3        | 62   | Peninsula     |
| Mission                       | 1       | 2769   | 5        | 757    | 3        | 79     | 0        | 0      | 4         | 282   | 2        | 4451  | 1        | 10   | Mission       |
| DeAnza                        | 3       | 38     | 5        | 491    | 5        | 1856   | 1        | 145    | 1         | 8     | 7        | 1694  | 2        | 2428   | DeAnza        |
| San Jose                      | 1       | 6      | 3        | 3690   | 2        | 667    | 5        | 167    | 2         | 19    | 5        | 4304  | 3        | 57   | San Jose      |
| Central Coast                 | 3       | 95     | 6        | 165    | 9        | 217    | 8        | 5312   | 2         | 51    | 22       | 10725 | 3        | 912  | Central Coast |
| Los Padres                    | 3       | 219    | 5        | 29     | 4        | 262    | 4        | 50     | 3         | 13    | 8        | 1107  | 8        | 218  | Los Padres    |
| Stockton                      | 6       | 255    | 4        | 247    | 4        | 658    | 4        | 483    | 5         | 276   | 16       | 3859  | 2        | 143  | Stockton      |
| Yosemite                      | 6       | 136    | 4        | 99     | 9        | 119    | 8        | 660    | 5         | 9     | 8        | 442   | 11       | 2556   | Yosemite      |
| Fresno                        | 6       | 274    | 5        | 69     | 5        | 207    | 9        | 93     | 3         | 23    | 12       | 526   | 8        | 4463   | Fresno        |
| Kern                          | 7       | 15     | 7        | 19     | 1        | 1      | 4        | 4      | 2         | 2     | 11       | 385   | 7        | 4682   | Kern          |
| TOTAL                         | 74      | 7951   | 147      | 18317  | 110      | 7214   | 69       | 12193  | 62        | 12401 | 246      | 67397 | 86       | 17693  | TOTAL         |

#### DSO SOPP FORECAST

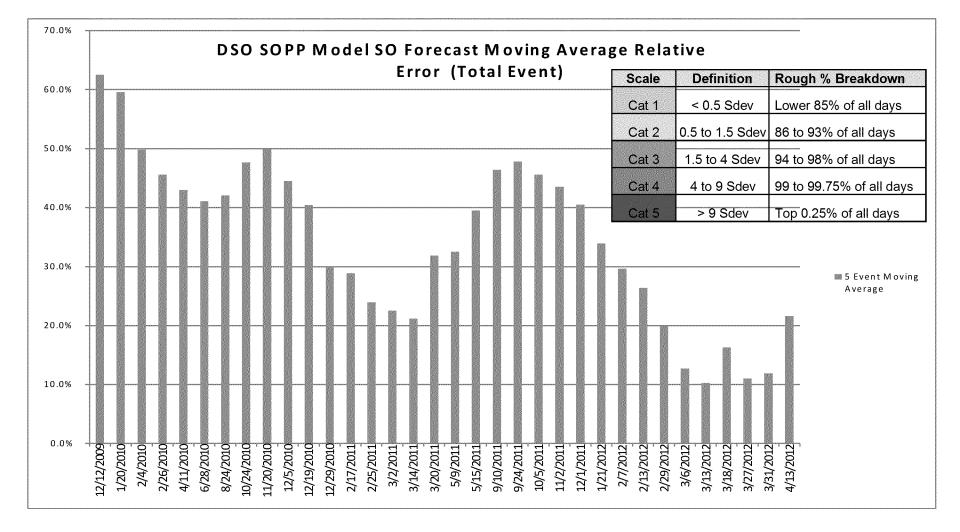
(Forecast numbers extracted from the previous day's forecast)

| ATS - Meteorology<br>Services | Mon - 3 | 3/26/12 | Tue - 3 | /27/12 | Wed - 3 | /28/12 | Thu - 3 | /29/12 | Fri - 3/; | 30/12 | Sat - 3/ | 31/12 | Sun - | 4/1/12 |             |
|-------------------------------|---------|---------|---------|--------|---------|--------|---------|--------|-----------|-------|----------|-------|-------|--------|-------------|
|                               | SO      | CESO    | SO      | CESO   | SO      | CESO   | SO      | CESO   | SO        | CESO  | SO       | CESO  | SO    | CESO   |             |
| Humboldt                      | 10      | 1500    | 23      | 3400   | 7       | 800    | 8       | 1200   | 12        | 1800  | 37       | 5500  | 4     | 500    | Humboldt    |
| Sonoma                        | 4       | 600     | 15      | 2900   | 5       | 800    | 4       | 600    | 4         | 600   | 16       | 3100  | 5     | 800    | Sonoma      |
| N. Valley                     | 6       | 500     | 15      | 2900   | 7       | 600    | 6       | 500    | 6         | 500   | 21       | 4000  | 5     | 500    | N. Valley   |
| Sac                           | 4       | 400     | 8       | 1700   | 5       | 500    | 4       | 400    | 4         | 400   | 8        | 1700  | 3     | 300    | Sac         |
| Sierra                        | 6       | 700     | 15      | 3400   | 8       | 1000   | 6       | 700    | 7         | 800   | 23       | 5200  | 5     | 600    | Sierra      |
| North Bay                     | 4       | 800     | 11      | 3200   | 4       | 800    | 4       | 800    | 4         | 800   | 11       | 3200  | 3     | 600    | North Bay   |
| San Fran                      | 1       | 600     | 2       | 1100   | 1       | 600    | 1       | 600    | 1         | 600   | 3        | 1700  | 1     | 600    | San Fran    |
| East Bay                      | 1       | 600     | 5       | 2800   | 2       | 1100   | 1       | 600    | 1         | 600   | 6        | 3400  | 1     | 600    | East Bay    |
| Diablo                        | 3       | 900     | 8       | 2800   | 3       | 900    | 3       | 900    | 3         | 900   | 8        | 2800  | 3     | 900    | Diablo      |
| Peninsula                     | 2       | 600     | 6       | 3100   | 3       | 800    | 2       | 600    | 2         | 600   | 9        | 4600  | 3     | 800    | Peninsula   |
| Mission                       | 2       | 700     | 3       | 1100   | 3       | 1100   | 2       | 700    | 2         | 700   | 5        | 1500  | 2     | 700    | Mission     |
| DeAnza                        | 2       | 500     | 3       | 700    | 3       | 700    | 2       | 500    | 2         | 500   | 11       | 2900  | 3     | 700    | DeAnza      |
| San Jose                      | 2       | 600     | 4       | 1200   | 3       | 900    | 2       | 600    | 2         | 600   | 7        | 2500  | 3     | 900    | San Jose    |
| Cent. Coast                   | 5       | 900     | 8       | 1400   | 8       | 1400   | 6       | 1000   | 6         | 1000  | 11       | 2900  | 6     | 1000   | Cent. Coast |
| Los Padres                    | 4       | 600     | 4       | 600    | 4       | 600    | 4       | 600    | 4         | 600   | 5        | 800   | 5     | 800    | Los Padres  |
| Stockton                      | 5       | 800     | 5       | 800    | 5       | 800    | 5       | 800    | 5         | 800   | 10       | 2700  | 6     | 1000   | Stockton    |
| Yosemite                      | 6       | 700     | 6       | 700    | 6       | 700    | 6       | 700    | 6         | 700   | 9        | 1500  | 8     | 900    | Yosemite    |
| Fresno                        | 8       | 1100    | 8       | 1100   | 8       | 1100   | 8       | 1100   | 8         | 1100  | 9        | 1200  | 10    | 1300   | Fresno      |
| Kern                          | 3       | 400     | 3       | 400    | 3       | 400    | 3       | 400    | 3         | 400   | 3        | 400   | 4     | 600    | Kern        |
| TOTAL                         | 78      | 13500   | 152     | 35300  | 88      | 15600  | 77      | 13300  | 82        | 14000 | 212      | 51600 | 80    | 14100  | TOTAL       |



### **DSO SOPP Model Error History**

- New categories were defined in Fall 2011, adjusted January 2012
- Increased sensitivity in DSO SOPP Model to smaller storms
- Drop in the relative error in recent months





### **DSO SOPP Intangibles**

The indirect and less quantifiable benefits besides more efficient restoration

## The SOPP methodology, databases, and expertise has enabled:

- Better situational awareness prior to and during weather events meteorologist takes on valuable role in the Plans Section in the Technical Specialist role
- Vastly improved understanding of weather risk to the system
- What is really causing outages and where
- Better understanding of cost drivers for different kinds of storms
- New understanding of the relationships between weather (trends) and reliability (trends) scores (much more than just the obvious fact that weather negatively impacts reliability)

## **Pre-Event**





Issued: Sunday January 17 2010 07:49

| Outage Fo | precast for => |         | unday<br>17/201 |    |           | onday<br>18/201 |         | 'uesday<br>'19/2010 |      |          |  |  |
|-----------|----------------|---------|-----------------|----|-----------|-----------------|---------|---------------------|------|----------|--|--|
| Outages   | by Division    | so      | Tm              | Cr | so        | Tm              | Cr      | SO                  | Tm   | C        |  |  |
| Area 1    | Peninsula      | <=5     | N               | N  | 24        | 36              | 5       | 16                  | 7    | 3        |  |  |
|           | San Fran       | <=2     | N               | N  | 8         | 3               | 3       | 5                   | 2    |          |  |  |
| Area 2    | Diablo         | <=5     | N               | N  |           |                 | 1. Star | 8                   | 4    | 1        |  |  |
|           | East Bay       | <=3     | N               | N  | 10        | 4               | 4       | 9                   | 4    |          |  |  |
|           | Mission        | <=3     | N               | N  |           |                 | 2005    | 7                   | 3    |          |  |  |
| Area 3    | Cent Coast     | <=11    | N               | N  | 48        | 1616            | 14      | 23                  | 7    |          |  |  |
|           | DeAnza         | <=5     | N               | N  | 16        | 7               | 7       | 9                   | 4    | 1        |  |  |
|           | San Jose       | <=6     | N               | N  |           | 200             |         | 8                   | 4    | . 1      |  |  |
| Area 4    | Fresno         | <≔9     | N               | N  | 20        | 6               | 5       | 13                  | 4    |          |  |  |
|           | Kem            | <=6     | N               | N  | 16        | 5               | 6       | 8                   | 2    | 3        |  |  |
|           | Los Padres     | <≓6     | N               | N. | 86 B      | 16              | 3       | 11                  | 4    |          |  |  |
| Area 5    | Stockton       | <=7     | N               | N  | 40        | 90              | (ii)    | 17                  | 5    | 14       |  |  |
|           | Yosemite       | <≕8     | N               | N  | 38        | 510             | 70.5    | 13                  | 4    |          |  |  |
| Area 6    | N. Valley      | <=9     | Ņ               | N  | 49        | 12              | 200     | 22                  | 7    | 1        |  |  |
|           | Sac            | <=6     | N               | N  | 30        | 8               | 21      | 18                  | 5    | 1        |  |  |
|           | Sierra         | <=11    | N               | N  | 40        |                 | 500     | 24                  | 6    | 3        |  |  |
| Area 7    | Humboldt       | 18      | 5               | 6  | ()  3i5)  | 30              | . (S)   | 42                  | 12   |          |  |  |
|           | Sonoma         | 8       | 3               | 3  | 22        |                 | - F     | 37                  | 9    |          |  |  |
|           | North Bay      | <b></b> | 3               | 3  | 100/2-000 |                 | 28      | 1997 B 201          | 1000 | <b>3</b> |  |  |

#### WindSOPP Model Outage Timing



Wednesday 1/20/2010 Timing

Thursday 1/21/2010

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Make ours to cover the "General West of SAUX2, with which teachers to before

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Safety Message - August 9, 2012

#### Pre-Planning Available Resources NOTE: provide the a Concepturisation between of an and every and antipervises and approximately and approximately for a source of the second statements and approximately and approximately and the second statements and approximately approximately and approximately approx Sulfunctional Area Pre-artanged or held Remember in . Ship the sid it register, welch out for one another and remind one arighter of the work purpose, these and allocations excises in patient on 212 Cali-out 212 Ca8 212 Cali-oùt 212 Cas ews or shift ews on shift ews on shift them (NR) Sonome North Valley Sacramento tay Area (BA) over vlavenoge / kanshas lyee Sabery San Pranc Eart Bay den Samme-offici Statenist Susses Disble Intral Coast (Cl нали нали и стран жало в рока жало корали Саранара, сали стран Саранара, сали с сали стран Саранара, сали с сали с саранат с саранат с саранат (a) New pressure in the stated or in the conditional conducts determined for supervised with the state of Desig Vapriong on Lagarta-Volkastyred vors sankada Prov Restantar, Rogistion Services Tensionery os Fedres ntral Valley (CV 0 0 12



## **Pre-Event Checklist**

#### Based on supporting execution of the Electric Operations Emergency Operations Plan

- 96 hour- is to be used when the SOPP model is forecasting escalated outage levels in approximately 96 hours out. The overall objective is to begin raising awareness with the Emergency Management Organization (EMO) and to begin the necessary planning activities.
- **48-72 hour-** Similar to the 96+ hours checklist, this checklist begins the transition from initial planning activities to tactical readiness. The objective of this checklist is to begin finalizing key strategies, messages, and readiness.
- 24 hour- This checklist is generally focused on tactical readiness. The objective of this checklist is to validate that the line item approvals are still appropriate based on the latest SOPP output. It is also set up to begin tactical activities such as messaging, where possible.



## **Pre Staging Resources**

#### Pre staging is done based on SOPP model outputs

- Field resource movements across the service territory
- Standby awaiting outage activity

#### Resources are staggered based on response role

- Troublemen and Operators on shift with additional resources reporting just prior to peak weather activity
- 911 Standby resources
- Crew and estimating resources staggered to capture efficiency

#### Contractor resources included in pre-staging based on forecasted weather impact



## Resource Staffing Plan

- Command and General Staff positions filled at all emergency room levels
- Staffing plans are updated weekly and used to populate the Incident Action Plan
- Incident Management Teams utilized to support headquarters with large outage volume
- Field Resources staffed to SOPP model outputs

|  |   |  | EMO Northern Region  |   |  |                    |
|--|---|--|--|---|--|--------------------|
| REC  | Humboldt  | North Valley   | Sacramento   | Sierra  | Sonoma                                       | Incident Managemen |
| Incident Command   | Incident Command  | Incident Command   | Incident Command   | Incident Command  | Incident Command                             |                    |
| Anthony Mar<br>530-326-0190                                      | Contria King-Rela.<br>20528642174                                       | Deb Hemgen<br>830-806-4275   | . Eps. Psipio<br>530-006-3304  | Marty Sunday<br>707.815.9244  | Alter Thurston<br>707.202.6965               |                    |
| Tom Elder<br>530-410-5059  | Richard Trimble<br>707-799-3861   | Brock Boyes<br>530-736-3647  | Trever Hammans<br>209-479-4176   | Emie Matiock<br>415-517-6541  | Ron Richardson<br>415-342-9160               |                    |
| Customer Strategy  | Customer Strategy   | Customer Strategy  | Customer Strategy  | Customer Strategy   | 1  |                    |
| Glay Schmidt<br>530-406-6115<br>Kris Matulich<br>916-955-3476    | Hobert Shern<br>307-398-1981<br>isen Mercuffo<br>707-498-4626           | Gerios Les<br>530.639.3080<br>Dorsen Moratan<br>530.701.2062         | Eans Source<br>533-613-9158<br>Keth Smith<br>\$15-296-2985   | Caus Bans<br>530-813-9156<br>Kaiti Smith<br>916-296-2965  | Customer Strategy                            |                    |
|  | anna ann an ann ann an ann ann an ann an a                              |  | a determined and the second of the second of the second se | animumente di della persona presenta della persona della pers | line and an and a second second              |                    |
| P&I<br>500-520-7492<br>Brian Streeney<br>916-505-8047            | P&I<br>Collean Hollean<br>707-637-0359<br>David Wylle<br>707-466-1536 - | P&I<br>Lorette Histor<br>520,520 2175<br>Bran Agnen:<br>520,513-7055 | P8J<br>Denise Asystems<br>320-857-1573<br>Onteno Johnson<br>915-912-4419   | P&I<br>Dense Leppe<br>970-616-1167  | <b>P&amp;I</b><br>Laura Mor<br>107-320-1263  |                    |
| Logistics  |   |  |  | Logistics   | -  |                    |
| Josejok Marino<br>530-407 (1851)<br>Lyns Ponette<br>916-402-0327 | Logistics<br>Sharin Norant<br>707-496-0118                              | Logistics<br>Let Bierrice<br>Set 410 6472                            | Logistics<br>Dery Stillaria<br>Still and 1027  | Joseph Abivardi<br>030-320-7077<br>Marty Nepper<br>530-226-4032   | Logistics<br>Conner Alendoza<br>707-261-6082 |                    |

Pre-Planning Available Resources

|  |                   |                                     |                 |                   | Rep                                 | air Crews       | (T-200 & T-       | 300)                                |                  |                   |                                     |                  |
|--|-------------------|-------------------------------------|-----------------|-------------------|-------------------------------------|-----------------|-------------------|-------------------------------------|------------------|-------------------|-------------------------------------|------------------|
|  |                   | Thurs                               |                 |                   | Fri                                 |                 | 1                 | Sat                                 |                  |                   | Sun                                 |                  |
|  | Crews on<br>shift | Pre-<br>arranged<br>or held<br>over | 212 Ca8-<br>out | Crews on<br>shift | Pre-<br>arranged<br>or heid<br>over | 212 Ca8-<br>out | Crews on<br>shift | Pre-<br>arranged<br>or held<br>over | 212 Cas-<br>out  | Crews on<br>shift | Pre-<br>arranged<br>or held<br>over | 212 Call-<br>Dut |
| Northern (NR)  | 3                 | 0                                   | 15              | 3                 | 0                                   | 5               | 0                 | 0                                   | 5                | 0                 | 0                                   | 5                |
| Humboldt<br>Sonoma<br>North Valley<br>Sacramento<br>Sierra | 9                 | •                                   | 12<br>3         | 0                 | 1                                   | 5               | 0                 | 0                                   | 5                | a                 | 0                                   | 5                |
| Bay Area (BA)  | 22                | 4                                   | H               | 22                | 4                                   | 12              | 3                 | 5                                   | 9                | 2                 | 4                                   | <b>y</b> 9       |
| North Bay<br>San Francisco<br>East Bay<br>Diatric          | 10<br>7<br>3<br>2 | 0                                   | 4               | 10<br>7<br>3      | 0                                   | 4 2 1 2         | 1<br>0<br>0<br>2  | 1<br>0<br>0                         | 1<br>2<br>1<br>5 | 0                 | 0                                   | 2 2 1            |
| Central Coast (CC)   | 22                | GINERALDARS                         | 8               | 19                | 5                                   | n               | 1                 |                                     | 10               | 1                 | 2                                   | 19               |
| Peringuia<br>Mission<br>De Anza<br>Samiose                 | 6/3man<br>3       | 1/4max late<br>O                    |                 | 5/3men<br>3       | 1/3man late<br>O                    |                 | 1<br>0            | 1                                   | 3/3man<br>5      | 1                 | 1 0                                 | 3/3man<br>5      |
| Central Coast  |                   |                                     |                 |                   |                                     |                 |                   |                                     |                  |                   |                                     |                  |
| Los Padres   | 14                | 4                                   | 2               | 11                | 4                                   | 2               | 0                 | 2                                   | 15               | 0                 | 1                                   | 2                |
| Central Valleg (CV)<br>Stockton                            | 24                | 11                                  | 20              | 23                | 18                                  | 18              |                   | 16                                  |                  | 0                 |                                     | 17               |
| Yosemite   | 0                 | 3                                   | -               | 0                 | 4                                   | 5               | 0                 | 2                                   | 5                | 0                 |                                     | 5                |
| Fresso   | 13                |                                     | 8               | 13                | 8                                   | 2               | 2                 | e e                                 | 5                | 0                 | 2                                   | 8                |
| Kern   | 1                 | · ·                                 | ŝ               |                   | ,                                   | ê               |                   |                                     |                  | 1                 |                                     | 2                |
| Total  | 71                | 14                                  | 54              | 67                | 17                                  | 46              | 9                 | 25                                  | 34               | i i               | 20                                  | 11               |

## During Event





## **Overall Strategy**

- Make Safe: Field personnel act to address hazardous conditions to ensure public and employee safety.
- **Assess:** Field personnel assess the outage location to:
  - identify the outage cause
  - determine the necessary (material, equipment, personnel)
  - estimate the time necessary to make repairs.
- **Communicate:** Field personnel and system operators work together to provide customers and public agencies with information: such as the cause of an outage and estimated time of restoration.
- **Restore:** After making the condition safe, assessing the situation and beginning the communication process, field personnel and system operators work together to restore service



#### **Electric System**

- Control area interconnections
- Generation
- Transmission
- Substation
- Distribution
- Customer level

#### **Special Considerations**

- Essential and Critical Customers (e. g., life support, hospitals, water, sewage, schools)
- Make Safe and Wire Down Situations
- Extended Duration Outages

## Close coordination is required with local and state governments



### Audience: Emergency Management Organization

EOC Command and General Staff, Region Directors, Division Superintendents and their respective command and general staff support

**Objective:** Organization leaders to set preliminary expectations for emergency centers, Incident Action Plan forms, and pre-staging requirements

### **Facilitated by the Planning Section Chief**

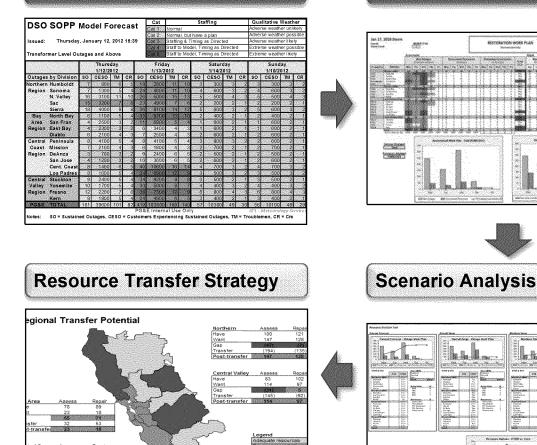
#### Agenda:

- Safety -- Key Safety Topics and Safety Incident Report Out (Safety Officer)
- Weather -- (Meteorology)
- Operations Update
- Restoration Update
- Resourcing Plan
- Closing Comments



### **Emergency Preparedness Resource and ETOR Strategy**

#### SOPP model

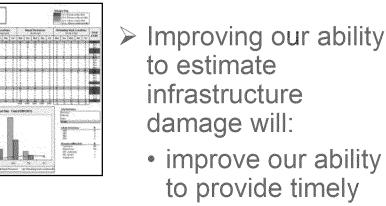


#### **Restoration Work Plan**

Like

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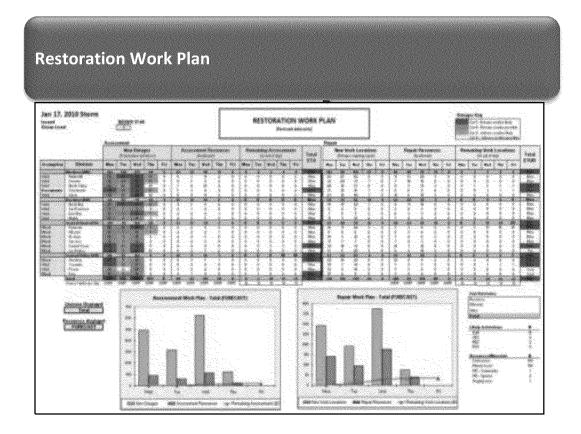


- to provide timely and accurate outage information
- expedite the outage restoration effort



Emergency Preparedness

### **Resource and ETOR Strategy**



#### Inputs

- > Weather
- Outage forecasts and real time outages
- Available resources
- Assessment and Restoration Rates

#### Outputs

- Assessment Times
- Restoration Times
- C Event ETOR

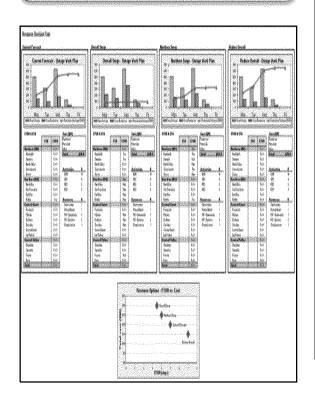




### Resource and Estimated Time of Restoration (ETOR) Strategy

#### **Resource Transfer Strategy** egional Transfer Potential Northerr Assess Repa 100 121 Want 187 128 (194 Transfer Post-transfer 147 **Central Valley** Assess Have 83 Wani 114 Transfer (145) Post-transfer 114 89 18 71 53 Legend Adequate resources esources available al Coas Assess Repair 105 126 45 60

#### **Scenario Analysis**



#### **Scenario Analysis**

 Allows us to determine resource movement strategy to meet operational objectives

#### Resource Transfer Strategy

- Takes input from scenario analysis and visually represents resource picture
- Identifies gaps in staffing levels.



### **Mutual Aid**

**Triggers for Mutual Assistance** 

Prior to and continuously through out an event, the EOC Director shall begin the process of evaluating and documenting the need for mutual assistance. The EOC Director will recommend the need for mutual assistance to the SVP of EDO when existing resources are determined to be inadequate. Conditions triggering this determination include, but are not limited to:

- All PG&E resources have or will be committed.
- Service restoration cannot be completed within 48 hours.
- It is the opinion of the EOC Director that additional resources will significantly reduce the time needed to complete restoration.
- Mobilization and travel time of Mutual Assistance Crews.

# Mutual Aid requests are prioritized to the closest available utilities



### **Smart Meter**

### **Restoration Validation**

 Restoration Validation enables users to ping the SmartMeters of Single Customer outages to determine if power has been restored

### **Manual Scoping**

• Operators have the ability to ping meters to determine if additional customers are also out.

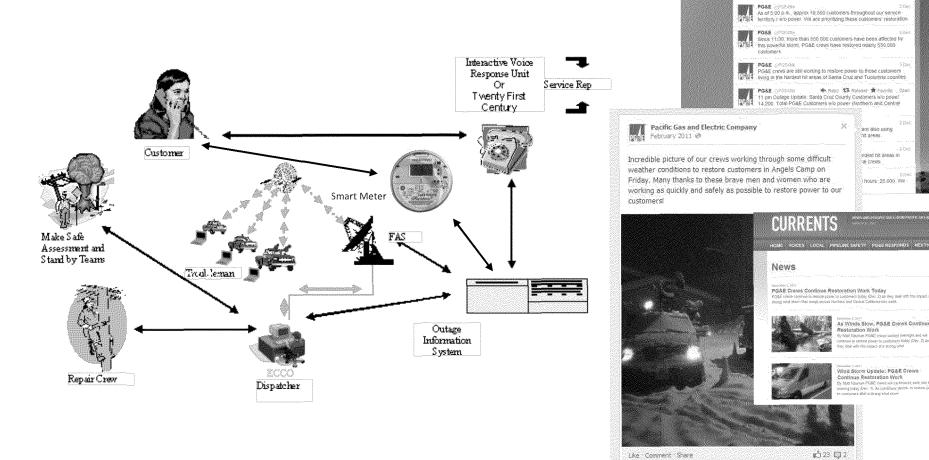
### **Probable Inferred Location**

 Identification of potential nested outages using the analysis of customer calls and the AMI (Advanced Metering Infrastructure) outage alarms



#### Other Outreach Tactics:

- Door to Door
- Town Hall Meetings
- Extended Outage Outbound Calls
- Government and State Interactions
- Social Media
  - Twitter
  - Facebook
  - Currents



PGRE If you a Provide your ou

PGAE We ha

3 If you are currently wio power, please call 1, 500-743-5002 to report your outside. Our crews are working as safely and quickly as possible.

WAE Scottered than 242 PCAE contract and mutual assistance crews

poyed across our service area working to restore service

# 911 Standby Process

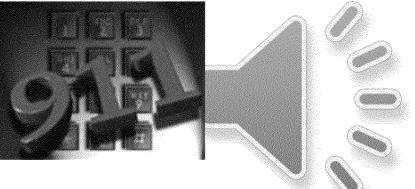








- High profile events
- Coordination and prompt response supports public safety
- Public agencies can then respond to other public safety concerns





# Emergency Preparedness Improving Performance





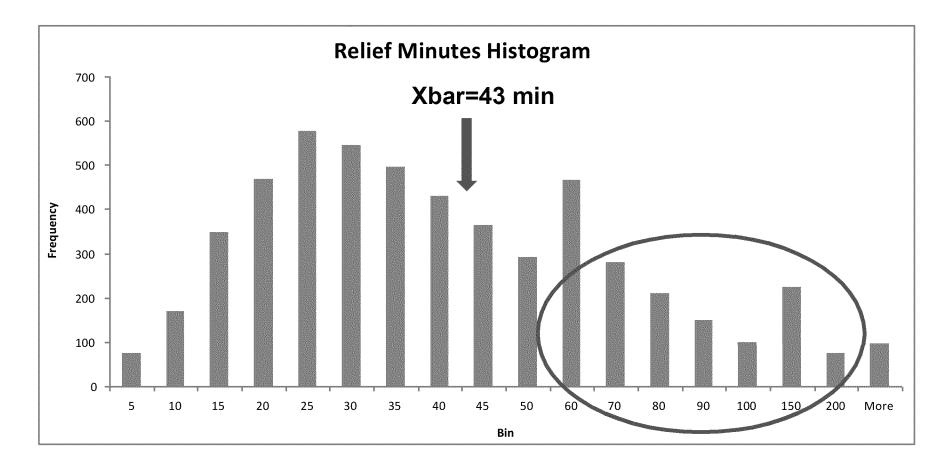
- > Organizational focus has driven improved performance
- > Daily metric on Daily Reliability Scorecard
- > Weekly reviews on daily status calls and with local teams



®

PP&F

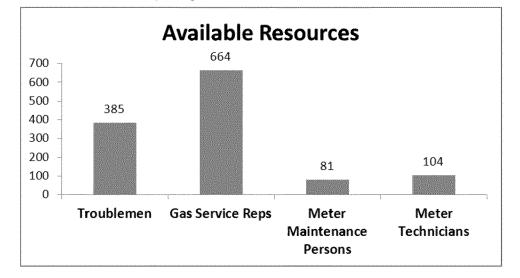
### **Process Capability**



2012 end of year performance 84.09%



#### **Resource Deployment**







- SOPP Forecast represents expected number of calls for each division
- Use of non-traditional resources (e.g., meter techs, GSRs) is critical during significant events\

#### Storm Response Performance within 1 hour

2011 **40%** 2012 **80%** 



Emergency Preparedness

### **Public Agencies As Partners**



- ➤ Training
- Pre-event Process Coordination
- > Joint Exercises
- Joint Stakeholder
   911 Committee
- Participation in PG&E exercises





## Joint Response Plans and Exercises

### PG&E has dedicated Public Safety Personnel to support training and exercise development

- Development of joint response plans based on identification of joint risk
- Utilization of Unified Command
- Joint exercise of developed response plans





### Adoption of Public Sector Best Practices

- ICS and NIMS
  - Command and General Staff ICS 100-400
  - Utilization of a written Incident Action Plan (IAP) including prioritization of goals and establishment of objectives
- Homeland Security Exercise and Evaluation Program (HSEEP)
  - All Emergency Preparedness personnel HSEEP certified
  - Application of the building block approach for training and exercises
  - Utilization of capabilities to drive development of exercise scenarios, supporting documents (Sit Mans, Ex Plans), and Exercise Evaluation Guides

### Formalized corrective action and improvement program

# Fire Prevention Plan



\* Emergency Preparedness Fire Prevention Plan

- Pre-planning Activities
  - Public Outreach
  - Fire and Weather Intelligence
- Threat Mitigation
  - Vegetation Management
  - Patrols and Inspections
  - Operational Precautions during high risk periods
- Proactive Responses to Fire Incidents
  - Fire suppression support
  - Pole treatment and ground cover mastication
- Post Incident Recovery
  - Thorough event critiques
  - Joint agency debrief sessions
- An addendum which identifies the specific CPUC requirements for Santa Barbara County with which PG&E should comply.





# **Fire Weather Forecasts**

- Daily fire weather
   forecasts (8 AM DSO call)
- Weekly fire weather summary forecast
- Alert organization of current and future fire weather conditions, and provide awareness of critical fire weather conditions
- Spot forecasts for active wildfires which threaten PG&E assets



#### Weekly Fire Weather Forecast 8/10/2012 - 8/17/2012

A strong ridge of high pressure is extending westward from the four corner regions over the Service Area and will dominate weather conditions through the weekend into early next week. Very hot temperatures are forecast across the interior valleys today and through the weekend with the warmest locations likely to exceed 105 degrees. During the afternoon hours today and through the weekend, relative humidities will drop to critical single digit values across the north creating conditions conducive for fire ignitions, extreme fire behavior and growth. Winds are expected to be light to moderate during this time frame with maximum gusts near 25 mph.



# **Distribution Maintenance**

- Performed additional annual enhanced patrols
  - Focus on facilities that can be a source of ignition and are near flammable vegetation- Completed by March 31<sup>st</sup>
- Maintenance identified by enhanced patrols rated as high priority and must be replaced or repaired by 7/31
- Performed overhead infrared inspections on all overhead line segments in the Urban Wildfire Areas by 6/30
- Vegetation contractor clears all Local Responsibility Area (LRA) locations in the Urban Wildfire (UWF) that have non-exempt equipment
- Proactive on non-exempt equipment in UWF area begins in 2012



### Routine T&D Vegetation Management Program Scope

- Annual ground inspection of every mile (100%) of overhead line. Address through trim or removal, any tree that will encroach within minimum clearance distances and any hazard tree to maintain regulatory compliance.
- 113,000 miles of distribution line
- 19,500 miles of transmission line
- 70,000 square mile service territory
- Prune or remove ~2,000,000 trees annually
- 5M trees in inventory with potential to "grow into" powerline

50M trees with potential to "fall into" powerline

Maintain fire breaks on 120,000 subject poles/towers

Maintain transmission right of way

**625 contract tree crews and 350 utility arborists/foresters** 

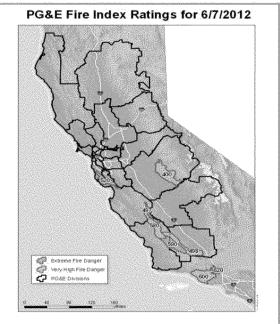


# **Fire Season Preparedness**

# Reinforced S-1464, Fire Danger Precautions in Hazardous Fire Areas with organization

- Prohibits or limits certain maintenance activities (i. e., blasting, welding, open burning) in "very high" or "extreme" areas
- Limits electric operations circuit testing
- Daily tailboard of fire weather forecast and fire index

| Fire Adjective Index for: Friday, June 15, 2   | minimum Fire Seasos (Max 18 to November 30) 2<br>2012 Updated by LMG8 on 6/15/12 @ 0007  |
|--|--|
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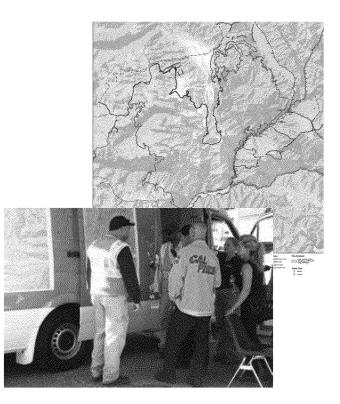


- Conducting spring table top exercises for gas and electric
  - ICS response structures and scenarios
  - Table top Exercises focused on ICS coordination, heat events and wildland fire response



# Wildland Fire Lessons Learned

- PG&E's proactive initial response support has been invaluable in supporting responder and public safety and effective response strategy
- PG&E presence at the ICP has provided enhanced information and intelligence to the Command Team and other Cooperating Agencies and supports the execution of the incident objectives
- GIS maps and MCV support has been identified by responders as proof of PG&E's commitment to public safety and community recovery
- PG&E's implementation of ICS has provided a more coordinated response across the enterprise and has resulted in the development of sustainable relationships within PG&E and with the agencies.
- Cell communications not reliable in all areas resulting in the addition of satellite communications to the Sprinter fleet- Sept 2012
- Multiple technology issues including: router and network
- Increase of 2 additional Emergency Communications Trailers (ECT) units Q1 2013





### Questions



# In Summary

- We want you to be informed on PG&E Capabilities We want to strengthen working relationship and continentations!
  - PG&E is here to support you!
- You will be receiving a Survey from PG&E within 10 days – for your Comments and Input



# If you have additional question or comments:

Redacted

### Manager, Electric Operations Emergency Preparedness and Public Partnerships

Redacted



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