

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA



**FILED**

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Application of Californians for Renewable  
Energy, Inc. (CARE) to modify Decision 06-  
07-027

Application 10-09-012  
(Filed September 20, 2010)

**Motion to provide supplemental information to CARE's Application 10-09-012**

Pursuant to Rule 11<sup>1</sup> of the California Public Utilities Commission ("Commission" or "CPUC") Rules of Practice and Procedure, Californians for Renewable Energy, Inc. (CARE) respectfully moves to provide supplemental information to CARE's Application 10-09-012; the National Transportation Safety Board January 21, 2011 report regarding the September 9, 2010 San Bruno natural gas pipeline explosion.

The NTSB's report is provided as a separate attachment.

**Introduction**

The National Transportation Safety Board on January 21, 2011 released seventy seven pages of facts, microscopic images, diagrams and other information related to their analysis of the San Bruno pipeline explosion and fire and announced it would extend a

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<sup>1</sup> 11.1. (Rule 11.1) Motions.

(a) A motion is a request for the Commission or the Administrative Law Judge to take a specific action related to an open proceeding before the Commission.

(b) A motion may be made at any time during the pendency of a proceeding by any party to the proceeding. A motion may also be made by a person who is not a party if it is accompanied by a motion, pursuant to Rule 1.4, to become a party.

(c) Written motions must be filed and served. The Administrative Law Judge may permit an oral motion to be made during a hearing or conference.

(d) A motion must concisely state the facts and law supporting the motion and the specific relief or ruling requested.

(e) Responses to written motions must be filed and served within 15 days of the date that the motion was served, except as otherwise provided in these Rules or unless the Administrative Law Judge sets a different date. Responses to oral motions may be made as permitted by the Administrative Law Judge.

(f) With the permission of the Administrative Law Judge, the moving party may reply to responses to the motion. Written replies must be filed and served within 10 days of the last day for filing responses under subsection (e) unless the Administrative Law Judge sets a different date. A written reply must state in the opening paragraph that the Administrative Law Judge has authorized its filing and must state the date and the manner in which the authorization was given (i.e., in writing, by telephone conversation, etc.).

(g) Nothing in this rule prevents the Commission or the Administrative Law Judge from ruling on a motion before responses or replies are filed.

Note: Authority cited: Section 1701, Public Utilities Code; and Section 2, Article XII, California Constitution. Reference: Section 1701, Public Utilities Code.

planned March hearing from two days to three days due to the large number of issues raised by the disaster, which killed eight people and destroyed dozens of homes.

The 30-inch-wide natural gas pipeline was manufactured in 1949, installed in 1956 and apparently had never been thoroughly inspected. It exploded after a power outage at a PG&E station in Milpitas caused its pressure to spike slightly to 386 pounds per square inch, a level that should have been safe. The NTSB report revealed that parts of a welded seam running along the pipeline, which split open during the accident, were contaminated and were much shallower than they should have been, largely because they were welded only from the outside instead from the inside and outside. “The longitudinal seams showed various defects including lack of penetration, incomplete fusion, slag inclusion, porosity and undercutting,” the report states at page 6. PG&E had previously told regulators that the pipe was seamless.

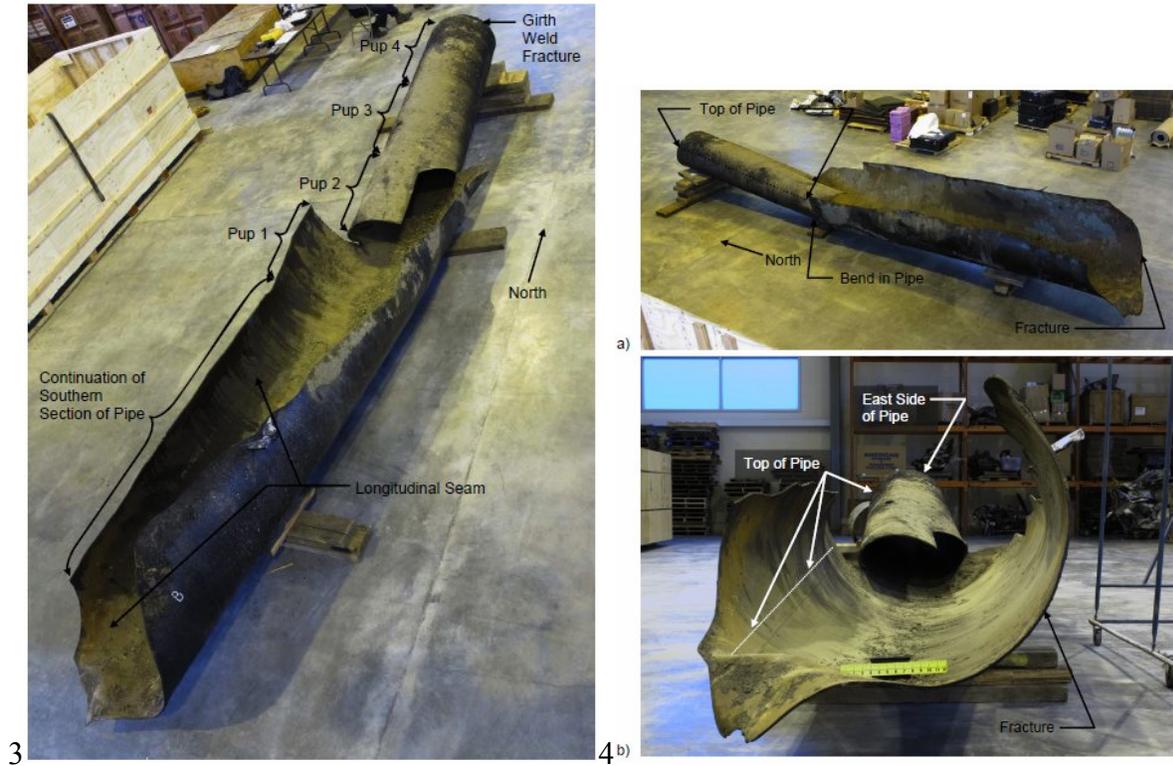
The questions that CARE’s application raise are whether the outage at PG&E’s Milpitas facility could have also contributed to the explosion by temporarily shutting down the pipe’s cathodic protection system and power supply. The cathodic protection system is a slight negative electrical charge that runs along the pipeline to prevent corrosion. When combined with the Milpitas facility it also helps prevent electric power surges to the pipeline. Since electrical currents would typically travel in the longitudinal direction any of the circumferential seams and fractures identified by NTSB are of specific concern for creating electrical gaps that could create electrical arcs as are areas on the underside where no coating was observed or the coating was recently pitted exposing un-oxidized metal that would have least resistance to an electrical ground.

### **Supplemental Information supporting an arc flash induced ignition source for fire and explosion**

The NTSB provides several photographs and sections that support the hypothesis that the catastrophic event was sparked by an arc flash creating the ignition source for the fire and explosion.

The NTSB report states “[t]he center section was 27 foot – 8 inch at its longest point and was comprised of the same long joint continuing from the southern section as well as four shorter lengths of pipe (pups) as shown in figures 3 and 4. For convenience the pups were numbered 1 through 6 in the south to north direction. The *circumferential*

welds (i.e. girth welds) that joined the pups were numbered sequentially from south to north as C1, C2, and so on through C7. The center section had *circumferential fractures* at both ends. One fracture was through the long joint to the south of pup 1 as shown in figure 4.”



“The other fracture was at the girth weld between pup 4 and pup 5 (girth weld C5 in figure 1) as shown in figures 3 and 6. “

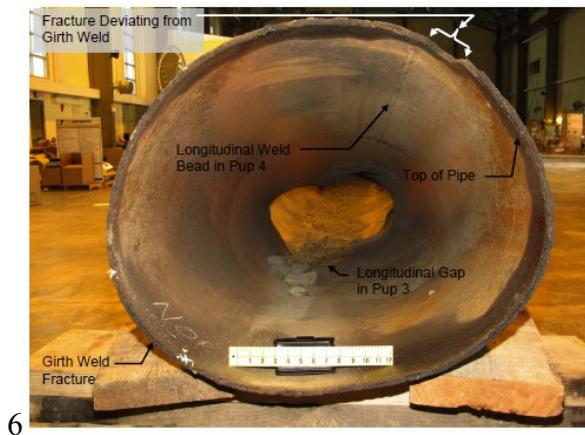
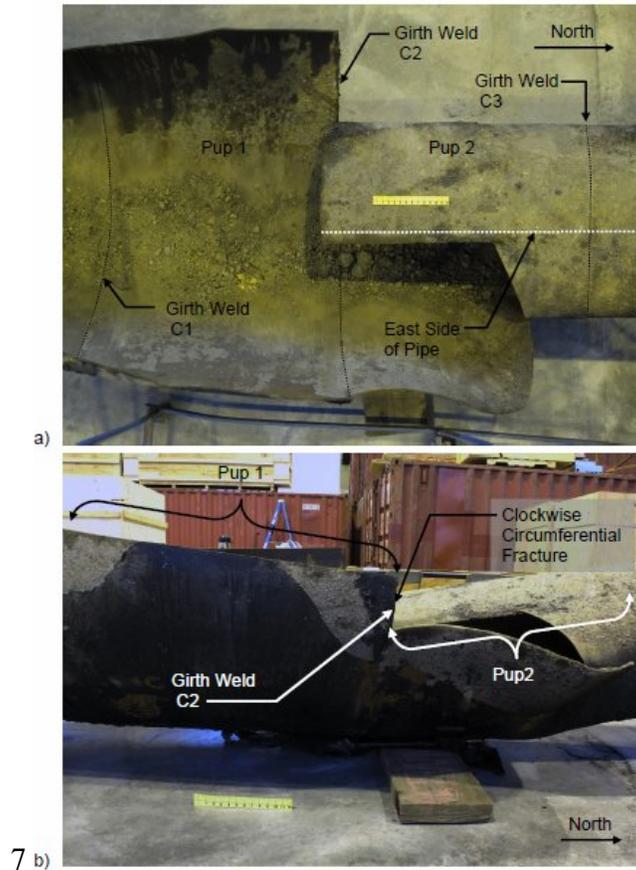


Figure 3 and 4 shows that a huge force was necessary to blow this 28 foot section of the gas main out of its buried location in order to throw the pipe over a thousand feet

away from the ground where it was buried under asphalt and soil. Notice that this force was also sufficiently strong to bend the section of pipe by 10 degrees on both ends and to collapse the pipe's diameter in the center where the explosion appears to have occurred.

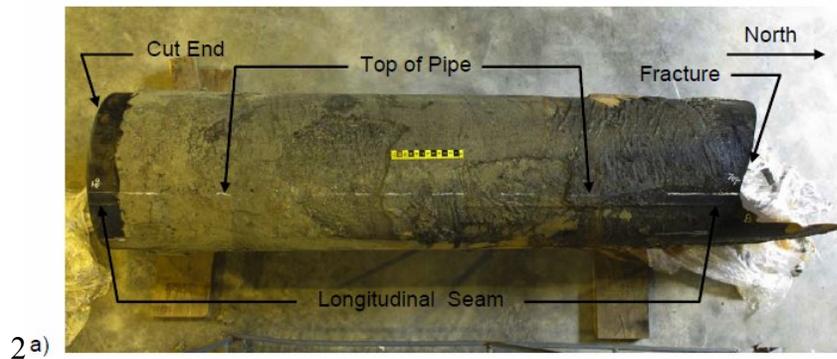


The NTSB report goes on to state “[t]here was a longitudinal fracture in pup 1 that continued in the long joint south of pup 1 to the *circumferential fracture* at the south end of the center section, visible in figure 3. There were *circumferential fractures* in girth weld C2 between pup 1 and pup 2 on both sides of the pup 1 longitudinal fracture as shown in figures 7a and b. In the counterclockwise direction, the *circumferential fracture measured 27 inch* (Note: Clockwise and counterclockwise directions are assigned as a rotation about the longitudinal axis of the pipeline looking north). At the end of the fracture there was a 10 inch diameter circular depression in the pipe. In the clockwise direction, the *circumferential fracture measured 6.25 inch, at which point it intersected with a longitudinal fracture in pup 2* as shown in figure 7b.”

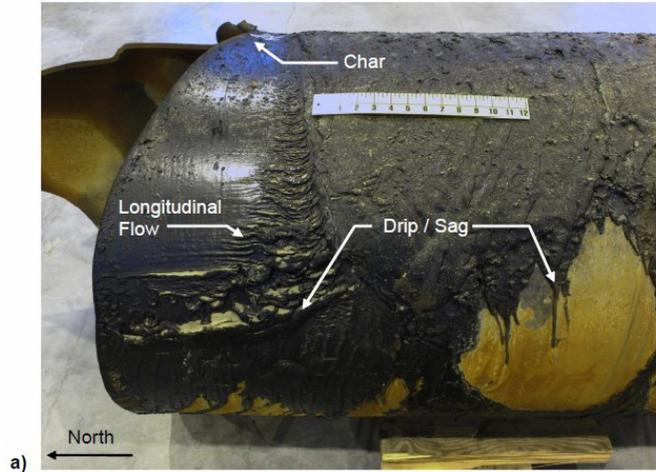
“The longitudinal fracture in pup 2 extended 29.25 inch from girth weld C2 at which point it branched in two, visible in figure 7a and 7c. One branch continued in the

longitudinal direction to within 3 inch of girth weld C3 (Note: This was only visible after removal of the coating as shown in figure 7c). The other branch was angled 66° to the longitudinal direction and measured 18 inch. The *circumferential fracture* at the north end of the center section deviated from girth weld C5 along a 3.5 inch *circumferential* length up to 1 inch longitudinally in pup 4 at the location shown in figure 6.” The *circumferential fractures* appear near the top of the pipe section and show that fracture likely occurred after the initial fire below the line since there is little heat damage visible near the fractures themselves.

The presence of the fire below the gas main before the explosion blew the pipe out of the ground is demonstrated by the NTSB report where its states “[t]he appearance of the pipe coating was consistent with hot applied asphalt, parts of which had been exposed to elevated temperatures. Examples of the coating condition on the southern sections are shown in figures 2 and 11.”



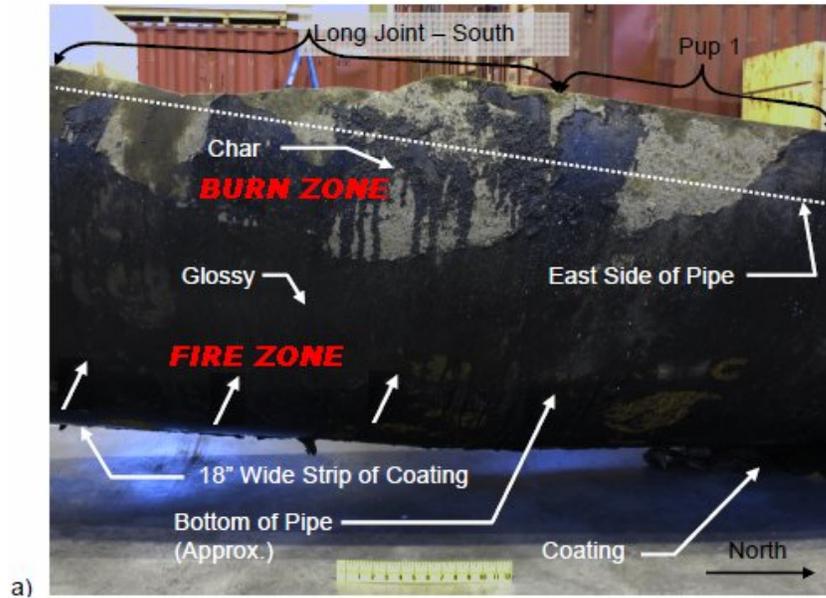
“No coating was observed on the bottom half of the pipe starting 3 foot – 4 inch from the cut end and continuing to the fractured end. The visible pipe surface was an orange color. The coating on the top half of the pipe close to the fracture exhibited features consistent with drips, sags, and charring as shown in figure 11a.”



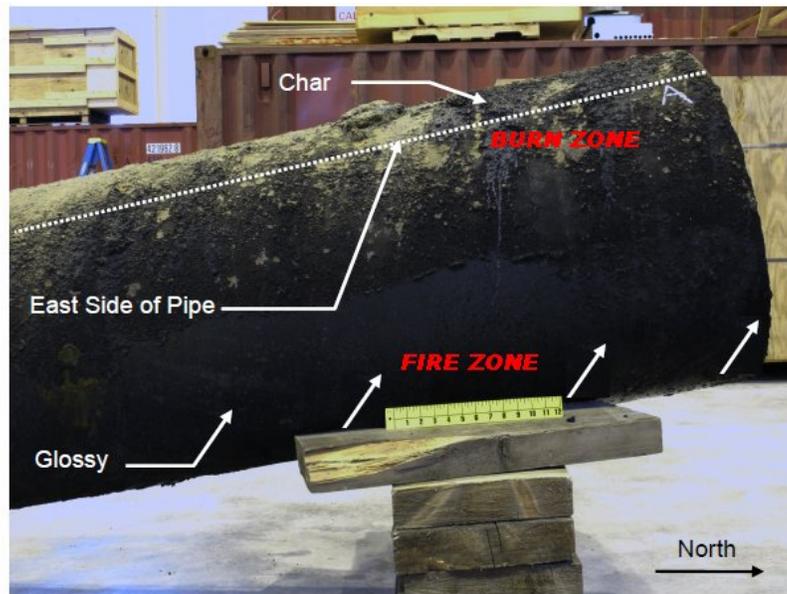
“The coating flow patterns were complex with longitudinal and circumferential flow occurring in different regions. Close to the cut end, the coating features were more consistent with as-applied asphalt as shown in figure 11b.”



*“The coating on the top and sides of the center section (in its resting position and not as installed) had either a charred or glossy appearance in various locations as shown in figure 13. In some locations, the coating appeared to be comingled with soil. On the underside of the pipe (in its resting position) between pup 1 and pup 2 there was a partially attached piece of coating approximately 32 inch in length, the start of which is indicated by an arrow in figure 13a. There was also an approximately 18 inch wide strip of coating attached to the underside running from pup 1 and continuing south to within 6 foot of the southern fracture, the start of which is also indicated in figure 13a. “*



a)



13 b)

The Figure 13 “Glossy” or “Char” regions of the exploded center section demonstrate the fire zone started at the bottom of the pipe since the heat was applied for a long enough period in the “fire zone” to make the tar coating on the bottom portion of the pipe melt and the upper portion to burn since the heat is greatest at the top of the flaming area where there is sufficient temperature and oxygen for the tar to combust leaving a carbon ash residue [noted as the “burn zone” in red text]. The Char area also demonstrates that the fire lasted a significant amount of time [several minutes] before the explosion occurred.

Finally according to the NTSB report “[t]here were also regions on the underside where no coating was observed and the pipe surface was visible. One region on pup 4 near the girth weld fracture is shown in figure 14a. The region was approximately 12.5 inch at its longest and 6 inch at its widest. The visible pipe surface had an orange/brown appearance.”



14 a)

“A second region from the underside of the long joint south of pup 1 is shown in figure 14b.”



14 b)

“No coating was observed over a cluster of small patches each approximately 2 inch in diameter. The visible pipe surface had an orange/brown appearance. Similar areas of no coating were observed on the undersides of pups 1, 2, and 3.”

In Figure 14 b) you can observe newly exposed uncoated metal, that due to the lack of oxidation of the metal exposed [marked in red text as “spark zone”], would have had a lower electrical resistance to electrical arcing than the surrounding oxidized uncoated regions of the underside of the pipe where the explosion pressure was sufficient to throw the pipe 1000 feet.

**There is still insufficient data being provided by PG&E to determine the root cause of the arc flash event that started the San Bruno pipeline fire and explosion.**

In order to demonstrate that an arc flash event sparked the San Bruno pipeline fire and explosion additional data must be made public by PG&E first. Because a power outage at a PG&E station in Milpitas caused a pressure spike hours before the explosion occurred, PG&E must be required by the Commission to make public any electrical data available that might account for any scenario where any electrical surges occurred in the line after that power outage occurred. PG&E should have been required to monitor the gas line's power as part of the line's normal operations when the Milpitas power was functioning correctly. Additionally PG&E must make public its SmartMeter "network telecommunication data" since as part of a wide area wireless network the SmartMeter equipped residences in the immediate vicinity of the pipeline; PG&E should have remote controlled meter readings from before, after, or during the San Bruno pipeline fire and explosion occurred as part of the SmartMeter system's normal operations.

**Conclusion**

The January 21, 2011 NTSB report provides evidence that supports the hypothesis that there was an arc flash induced ignition source for fire and subsequent explosions that occurred on September 9, 2010 in San Bruno California. Specifically these key facts are a huge force was necessary to blow a 28 foot section of the gas main out of its buried location in order to throw the pipe over a thousand feet away from the ground where it was buried under asphalt and soil, that this force was also sufficiently strong to bend the section of pipe by 10 degrees on both ends and to collapse the pipe's diameter in the center where the explosion appears to have occurred. The report demonstrates the fire zone started at the bottom of the pipe. The Char area also demonstrates that the fire lasted a significant amount of time before the first of more than one explosion occurred. Finally the report provides photographic evidence of newly exposed uncoated metal that due to the lack of oxidation of this metal exposed it to increased risk of electrical arcing on the underside of the pipe where the explosion pressure was sufficient to throw the pipe 1000 feet.

PG&E must publicly release its electrical data from the gas main that exploded and the electrically interconnected Milpitas facility as well as SmartMeter network data from the San Bruno neighborhood where the explosion occurred to possibly determine the root cause of the fire and the explosion that followed.

Respectfully submitted,



Michael E. Boyd President  
CALifornians for Renewable Energy, Inc.  
(CARE)  
5439 Soquel Drive  
Soquel, CA 95073  
Phone: (408) 891-9677  
E-mail: [michaelboyd@sbcglobal.net](mailto:michaelboyd@sbcglobal.net)



Lynne Brown Vice-President  
CALifornians for Renewable Energy, Inc.  
(CARE)  
24 Harbor Road  
San Francisco, CA 94124  
Phone (415) 285-4628  
E-mail: [l\\_brown369@yahoo.com](mailto:l_brown369@yahoo.com)

January 27<sup>th</sup>, 2011

**Verification**

I am an officer of the Applicant Corporation herein, and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except matters, which are therein stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 27<sup>th</sup> day of January 2011, at San Francisco, California.



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Lynne Brown Vice-President  
CALifornians for Renewable Energy,  
Inc. (CARE)

**Certificate of Service**

I hereby certify that I have this day served the foregoing document "*Motion to provide supplemental information to CARE's Application 10-09-012*" of CALifornians for Renewable Energy, Inc. (CARE) under CPUC Application 10-09-012. Each person designated on the official service list, has been provided a copy via e-mail, to all persons on the attached service list on January 27, 2011, for the proceedings, Application 10-09-012, with a copy to A.05-06-028 and I.10-11-013 Service Lists. First class mail will be used if electronic service cannot be effectuated.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 27<sup>th</sup> day of January 2011, at Soquel, California.



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Michael E. Boyd President  
CALifornians for Renewable Energy, Inc.  
(CARE)  
5439 Soquel Drive  
Soquel, CA 95073  
Phone: (408) 891-9677  
E-mail: [michaelboyd@sbcglobal.net](mailto:michaelboyd@sbcglobal.net)

**A1009012 Service List**

kpp@cpuc.ca.gov,  
CJN3@pge.com,  
michaelboyd@sbcglobal.net,  
mrw@mrwassoc.com,  
Jamesr2012@gmail.com,  
case.admin@sce.com,  
Janet.Combs@sce.com,  
cjw5@pge.com,  
jwwd@pge.com,  
cem@newsdata.com,  
ehw2@pge.com,  
EMFSafe@sonic.net,  
tcr@cpuc.ca.gov,  
tjs@cpuc.ca.gov,

**With a copy to A0506028 Service List**

sdebroff@rroads-sinon.com,  
CManzuk@SempraUtilities.com,  
kpp@cpuc.ca.gov,  
pfa@cpuc.ca.gov,  
nsuetake@turn.org,  
SAW0@pge.com,  
jeffgray@dwt.com,  
jmrb@pge.com,  
chris@emeter.com,  
Service@spurr.org,  
michaelboyd@sbcglobal.net,  
bhines@svlg.net,  
jweil@aglet.org,  
bill@jbsenergy.com,  
mrw@mrwassoc.com,  
martinhomec@gmail.com,  
john.quealy@canaccordadams.com,  
mark.sigal@canaccordadams.com,  
stuart.bush@rbcm.com,  
sschare@summitblue.com,  
Ward.camp@cellnet.com,  
jamodisett@bryancave.com,  
klatt@energyattorney.com,  
Case.Admin@sce.com,  
janet.combs@sce.com,  
RGiles@SempraUtilities.com,  
CManson@SempraUtilities.com,  
mdjoseph@adamsbroadwell.com,  
cpuccases@pge.com,  
bruce.foster@sce.com,

marcel@turn.org,  
bwt4@pge.com,  
cjw5@pge.com,  
DJRo@pge.com,  
IFM1@pge.com,  
jrcj@pge.com,  
KAF4@pge.com,  
pxo2@pge.com,  
edwardoneill@dwt.com,  
shaunao@newsdata.com,  
lisa\_weinzimer@platts.com,  
cjn3@pge.com,  
barryeisenberg@comcast.net,  
regrelcpuccases@pge.com,  
jharris@volkerlaw.com,  
dmarcus2@sbcglobal.net,  
rschmidt@bartlewells.com,  
sarveybob@aol.com,  
jeff@jbsenergy.com,  
gabriellilaw@sbcglobal.net,  
sandi@emfsafetynetwork.org,  
kmills@cfbf.com,  
tomer@usclcorp.com,  
rabbott@plexusresearch.com,  
Michael.hetherington@usa.net,  
GxGw@pge.com,  
RegRelCPUCCases@pge.com,  
cem@newsdata.com,  
martinhomec@gmail.com,  
mlk@kirtlandpackard.com,  
vdr@cpuc.ca.gov,  
agc@cpuc.ca.gov,  
as2@cpuc.ca.gov,  
adf@cpuc.ca.gov,  
ctd@cpuc.ca.gov,  
cjb@cpuc.ca.gov,  
dug@cpuc.ca.gov,  
jf2@cpuc.ca.gov,  
kkm@cpuc.ca.gov,  
lmi@cpuc.ca.gov,  
mbe@cpuc.ca.gov,  
mlc@cpuc.ca.gov,  
mcv@cpuc.ca.gov,  
rsk@cpuc.ca.gov,  
gig@cpuc.ca.gov,  
scl@cpuc.ca.gov,

u19@cpuc.ca.gov,  
tmr@cpuc.ca.gov,  
awp@cpuc.ca.gov,  
dhungerf@energy.state.ca.us,  
mlk@kirtlandpackard.com,  
**With a copy to I1011013 Service List**  
rcc@cpuc.ca.gov,  
EFL5@pge.com,  
mlw3@pge.com,  
mrw@mrwassoc.com,  
hayley@turn.org,  
marcel@turn.org,  
JLsalazar@SempraUtilities.com,  
mshames@ucan.org,  
austin.yang@sfgov.org,  
bts1@pge.com,  
NXKI@pge.com,  
cem@newsdata.com,  
blake@consumercal.org,  
dgenasci@DayCarterMurphy.com,  
mdr@cpuc.ca.gov,  
rst@cpuc.ca.gov,  
rgf@cpuc.ca.gov,  
hym@cpuc.ca.gov,  
jsw@cpuc.ca.gov,  
jmh@cpuc.ca.gov,  
rwc@cpuc.ca.gov,  
sba@cpuc.ca.gov,