Decision **PROPOSED DECISION OF ALJ FUKUTOME** **(Mailed 5/25/2010)**

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

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| Application of Pacific Gas and Electric Company for Authority to Increase Revenue Requirements to Recover the Costs to Implement a Program to Improve the Reliability of Its Electric Distribution System (U 39 E). | Application 08-05-023 (Filed May 15, 2008) |

(See Attachment B for List of Appearances.)

# DECISION ON PACIFIC GAS AND ELECTRIC COMPANY REQUEST TO IMPLEMENT A PROGRAM TO IMPROVE ELECTRIC DISTRIBUTION SYSTEM RELIABILITY

## TABLE OF CONTENTS

**Title** **Page**

DECISION ON PACIFIC GAS AND ELECTRIC COMPANY ..... 2
REQUEST TO IMPLEMENT A PROGRAM TO IMPROVE ..... 2
ELECTRIC DISTRIBUTION SYSTEM RELIABILITY ..... 2
1. Summary ..... 2
2. Background ..... 3
2.1. Procedural Matters ..... 3
3. PG&E's Updated Request ..... 6
4. Positions of the Other Parties ..... 7
4.1. TURN ..... 8
4.2. DRA ..... 9
4.3. CUE ..... 10
4.4. CCSF ..... 11
4.5. CFBF ..... 12
4.6. ESC ..... 12
5. Commission Review ..... 12
6. Need for Cornerstone ..... 14
6.1. Discussion ..... 15
7. How to Proceed ..... 18
7.1. Cornerstone ..... 18
7.2. Future Proceedings ..... 19
8. Adopted Elements of Cornerstone ..... 20
8.1. Distribution Automation ..... 21
8.1.1. PG&E's Proposal ..... 21
8.1.2. Discussion 22
8.2. Feeder Interconnectivity ..... 25
8.2.1. PG&E's Proposal ..... 25
8.2.2. Discussion 26
8.3. Substation Transformer Emergency Capacity ..... 28
8.3.1. PG&E's Proposal ..... 28
8.3.2. Discussion 29
8.4. Rural Reliability ..... 34
8.4.1. PG&E's Proposal ..... 34
8.4.2. Discussion 35
8.5. SAIDI and SAIFI Benefits ..... 37

9. Adopted Costs ..... 38
10. Implementation Flexibility ..... ~~38~~39

**Title** **Page**

11. Cost Recovery ..... ~~38~~39
11.1. Discussion ..... ~~40~~41
12. Reporting Requirements ..... ~~42~~43
12.1. Discussion ..... ~~43~~44
13. Rate Design ..... ~~44~~45
14. Comments on Proposed Decision ..... ~~44~~45
15. Assignment of Proceeding ..... ~~44~~45
Findings of Fact ..... ~~44~~46
Conclusions of Law ..... ~~47~~49
ORDER ..... ~~49~~51
ATTACHMENT A – Authorized Expenditures for the Years 2010 through 2013
ATTACHMENT B – Lists of Appearances

DECISION ON PACIFIC GAS AND ELECTRIC COMPANY
**REQUEST TO IMPLEMENT A PROGRAM TO IMPROVE ELECTRIC DISTRIBUTION SYSTEM RELIABILITY**

## 1. Summary

This decision determines that Pacific Gas and Electric Company (PG&E) has not demonstrated the need for its broad based Cornerstone Improvement Project that is designed to elevate PG&E's electric distribution reliability to a substantially higher level at a cost of $1,992.0 million in capital and $58.9 million in expense over the period 2010 through 2016. Instead, expenditures amounting to $357.4 million in capital and $9.2 million in expense, for the period 2010 through 2013, are authorized to fund a reduced program that (1) addresses specifically identified problems related to worst-performing circuits and substation transformer emergency capacity and (2) implements feeder interconnectivity and rural reliability projects that are cost-effective. Still, through this reduced program, it is estimated that up to 68% of the quantifiable reliability improvement benefits identified in PG&E's Cornerstone Improvement Project proposal can be achieved for the approximate 18% of the requested costs.

Particular projects that are rejected at this time are done so without prejudice. PG&E should address all future electric distribution reliability matters in an integrated fashion through the general rate case process. For its 2014 general rate case, PG&E is required to perform and present a value of service study to help it and the Commission decide to what extent, if any, electric distribution reliability should be improved to satisfy its customers' needs. In developing future reliability improvement programs or projects PG&E must be able to demonstrate the need for such programs or projects, and if there is a need, whether the program or project represents the optimal solution when

considering alternatives and cost-effectiveness in the identification and prioritization processes.

## 2. Background

Pacific Gas and Electric Company (PG&E) filed its Cornerstone Improvement Project (Cornerstone) application, because the company believes that it is time to improve the resiliency and reliability of its electric distribution system to a level better than the "adequate" service standard adopted for PG&E in past General Rate Cases (GRCs). PG&E states that, while it has met the reliability standards set by the Commission in past years, it is proposing through the seven-year Cornerstone project to improve the reliability of its electric distribution system to a level substantially above current level and bring its performance closer to that of the other investor-owned utilities in California.

PG&E proposes adding substation transformers, doing increased interconnectivity work between distribution circuits, installing distribution automation on more distribution circuits, and improving rural reliability through the installation of reclosers and fuses. According to PG&E, the project is designed not only to improve PG&E's System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) numbers, but also to bring PG&E's asset utilization in line with industry practice, to extend the service lives of distribution equipment, and to put into place building blocks that may provide for even better reliability and enhanced customer service once "Smart Grid" technology is more fully developed in the coming years.

### 2.1. Procedural Matters

This application was filed on May 15, 2008. At the time of the filing, PG&E requested that the Commission approve and fund Cornerstone over the

six year period 2009 through 2014, with estimated capital expenditures amounting to $2,322 million and operation and maintenance expenses of $43 million. PG&E also proposed that the Commission impose a reliability performance metric which will result in financial penalties if PG&E did not meet the targets and symmetrical financial rewards if PG&E exceeded the targets.

On June 17, 2008, The Utility Reform Network (TURN) and the Division of Ratepayer Advocates (DRA) jointly filed a motion to dismiss the application. TURN/DRA argued that PG&E's request should be addressed not separately from, but as part of, the GRC process, and the request to do so now is a unilateral attempt to modify key terms of the Settlement regarding the distribution infrastructure funding levels adopted by the Commission in Decision (D.) 07-03-044.

Responses to the motion to dismiss were filed on June 30, 2008, by PG&E, and on July 2, 2008, by the Coalition of California Utility Employees (CUE) and jointly by the California Large Energy Consumers Association (CLECA), California Manufacturers & Technology Association (CMTA), and Energy Producers & Users Coalition (EPUC). PG&E and CUE argued that the motion should be denied, while CLECA, CMTA, and EPUC supported the motion. TURN and DRA filed a reply on July 18, 2008.

On December 19, 2009, an assigned Commissioner's and Administrative Law Judge's (ALJ) Joint Ruling was issued. The ruling denied the motion to dismiss in part, indicating that the Commission would consider PG&E's Cornerstone request as part of this proceeding. The motion to dismiss was granted in part, in that any revenue requirement increase related to the project for the years 2009 and 2010 would not be recoverable from ratepayers, and any reliability incentive mechanism that might be adopted as part of this

proceeding could not be implemented until 2011, at the earliest. These two conditions were deemed necessary in order to honor certain terms and conditions of the GRC Settlement adopted by the Commission in D.07-03-044.

PG&E filed a prehearing conference (PHC) statement on January 14, 2009, indicating that it would update its testimony in light of the ruling on the motion to dismiss and the lapse of time since the application was filed. In the PHC statement, PG&E presented a revised scope of issues and a proposed procedural schedule that envisioned the issuance of a final decision by August 20, 2009. A joint PHC statement was filed on January 22, 2009 by TURN, DRA, the California Farm Bureau Federation (CFBF), and CLECA. The joint parties identified additional issues to be considered within the scope of the proceeding, identified their understanding of PG&E's burdens of production and proof as the Applicant, and proposed a schedule that would add approximately four months to that proposed by PG&E. These matters were discussed at the January 26, 2009 PHC. The assigned Commissioner's Ruling and Scoping Memo was issued on February 23, 2009.

PG&E served updated testimony on March 17, 2009. Responsive testimony was filed on July 17, 2009.[1] PG&E and CUE served rebuttal testimony on August 7, 2009. Evidentiary hearings were held August 24, 2009 through August 26, 2009. Opening Briefs were filed on September 25, 2009.[2] Reply briefs

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[1] Testimony was served by DRA, TURN, CFBF, CUE, and the City and County of San Francisco (CCSF).

[2] Opening and reply briefs were filed by PG&E, DRA, TURN, CFBF, CUE, CCSF, and the Engineers and Scientists of California (ESC).

were filed on October 9, 2009, at which time this proceeding was submitted for decision.

### 3. PG&E's Updated Request

In its March 17, 2009 updated testimony, PG&E requests that the Commission approve and fund a seven-year Cornerstone program, for the years 2010 through 2016, with estimated capital expenditures of $1,992 million and operation and maintenance expenses of $59 million.

PG&E requests increases in its revenue requirement to account for the capital costs associated with these plant additions. Consistent with the December 19, 2008, assigned Commissioner's Ruling, PG&E will not increase rates to pay for the Cornerstone revenue requirements in 2010 and will therefore forego recovery of the costs associated with Cornerstone in 2010. PG&E will include all capital expenditures in its rate base and recover the costs of those capital improvements over the remaining life of the assets beginning in 2011. For the years 2011 through 2016, PG&E estimates revenue requirements totaling $1,112 million.[3]

PG&E proposes to track the revenue requirement associated with this project in a balancing account and will return to customers, with interest, any revenues authorized by this Commission that are in excess of the revenue requirement needed to recover the recorded costs of the reliability projects envisioned in Cornerstone. In addition, PG&E proposes to file annual reports with the Commission, describing work done over the previous year, a forecast of

[3] The remaining revenue requirement associated with the Cornerstone program would be recovered in rates over the remaining depreciable life of the assets. The depreciable life of the distribution expenditures is approximately 30 years.

the work to be performed in the coming year, and documentation supporting any changes from prior forecasts at the level of elements over $1 million in capital expenditures.

The table below summarizes PG&E's request, as updated in its March 17, 2009 testimony.

| **PG&E Request** | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Total |
|---|---|---|---|---|---|---|---|---|
| | | | (Nominal dollars in thousands) | | | | | |
| **Capital Expenditures** | | | | | | | | |
| Distribution Capacity | $ 55,352 | $188,471 | $254,474 | $261,705 | $240,577 | $188,175 | $135,523 | $1,324,277 |
| Distribution Automation | 41,460 | 85,394 | 117,377 | 120,866 | 93,520 | 80,405 | 66,367 | 605,389 |
| Rural Reliability | 4,270 | 8,796 | 12,091 | 12,451 | 9,635 | 8,284 | 6,838 | 62,365 |
| **Total Capital Expenditures** | $101,082 | $282,661 | $383,942 | $395,022 | $343,732 | $276,864 | $208,728 | $1,992,031 |
| | | | | | | | | |
| **Expenses** | | | | | | | | |
| Distribution Capacity | - | $ 3 | $ 742 | $ 1,784 | $ 2,893 | $ 4,071 | $ 5,046 | $ 14,539 |
| Distribution Automation | - | $ 975 | $ 3,022 | $ 5,902 | $ 8,968 | $ 11,491 | $ 13,790 | $ 44,148 |
| Rural Reliability | - | 5 | 16 | 32 | 48 | 62 | 74 | 237 |
| **Total Expenses** | $ - | $ 983 | $ 3,780 | $ 7,718 | $ 11,909 | $ 15,624 | $ 18,910 | $ 58,924 |
| | | | | | | | | |
| **Revenue Requirement** | $ - | $ 40,540 | $ 97,491 | 163,652 | $224,827 | $275,753 | $310,027 | $1,112,290 |

TURN, CUE and DRA opposed PG&E's proposed Reliability Performance Incentive Mechanism. In its rebuttal testimony,[4] PG&E withdrew its proposal to establish a reliability performance metric with associated penalties and rewards, stating that after reviewing the intervenors' testimony, and given the complexity of developing an appropriate evaluation mechanism, the company believes that rather than litigating this issue further, it is preferable to simply remove this part of its proposal.

## 4. Positions of the Other Parties

A number of different parties participated in this proceeding. Parties object to at least some, if not all, aspects of the Cornerstone proposal, and have

[4] Exhibit 2, at 1-22.

supplemented the record with their testimonies and recommendations. A brief summary of their positions follow.

### 4.1. TURN

TURN urges the Commission to reject PG&E's application arguing that the request is unreasonable and inadequately supported and PG&E's approach to this matter is fundamentally flawed. According to TURN, PG&E's proposal is not cost-effective, is not prioritized to provide the most benefits at the least cost, contains well over a billion dollars of spending that will have miniscule impacts (if any) on reliability measures, and ignores existing equipment. Also, PG&E has not demonstrated that its proposal will address the types of reliability events that spawned the application, such as the 2006 heat storms, the 2007-2008 storm season, and other high profile outages. TURN states by the Commission saying "no" to PG&E's application, PG&E will be required to work with the tools already available to the utility to address reliability performance, just as it did in developing and implementing the 2007 SAIFI Reduction Program (designed to achieve 40% of the SAIDI improvement at 2% of the cost of the Distribution Reliability Improvement Program). TURN adds that the record evidence suggests that Cornerstone would not only serve the more general goal of increasing rate base investment as a means of achieving the company's ambitious earning growth goals, but is specifically identified as a way out of the hole created by the shortfall in its "Business Transformation" efforts.

TURN's primary alternative recommendation would have the Commission provide clear guidance as to the type of showing the utility needs to make in support of any proposal for additional reliability-targeted spending, and create a separate phase of the upcoming GRC to consider such proposals. TURN also recognizes that where the subject matter is PG&E's service reliability, the

Commission may be reluctant to reject the application in its entirety and instead desire to give the utility some amount of additional funding to spend toward improving reliability. If the Commission decides to authorize some funding in this application, TURN recommends that it should approve funding in amounts no greater than those set forth in TURN's second alternative recommendation. It should also condition any such funding as TURN proposed in that alternative, to achieve some degree of the prioritization and cost consciousness that TURN asserts is lacking in the application. TURN estimates that this alternative provides approximately 65% of PG&E's reliability (SAIDI/SAIFI) improvement for 11% of PG&E's budget recommendation. The capital expenditures associated with TURN's alternative recommendation are $129.7 million for distribution automation; $44.7 million for distribution capacity principally to support distribution automation; and $53.3 million for accelerated rural reliability. TURN would also include $7.7 million in expenses for distribution automation.

### 4.2. DRA

DRA urges the rejection of PG&E's Cornerstone proposal. The general issues upon which DRA bases its opposition to the project are as follows: PG&E fails to satisfy its evidentiary burden; it violates statutory law and Commission precedent; and PG&E's regulatory showing has no meaningful or reliable evidence to support the project's cost-effectiveness, the value of the service it offers customers, or inter-utility comparisons on reliability, and provides insufficient details on the specific projects within Cornerstone. Also, DRA states that ratepayers' perceptions and opinions were not factors that were considered regarding whether PG&E needed to improve its electric distribution reliability. Moreover, according to DRA, there is good evidence that the Cornerstone

application is primarily motivated by its corporate interest in increasing its rate base, rather than some genuine concern with serving its customers interests.

From purely policy perspective, DRA states that there could be a reasonable argument that PG&E should be entitled to consider whether to institute a program such as Cornerstone. However, DRA asserts that PG&E should have limited its request as one for guidance from the Commission, rather than the $2 billion application being considered here, adding that for a policy-supported project to go into effect, it would have to be based on tangible, verifiable, and reasonable proof that its costs and benefits would ultimately serve the public's interest. According to DRA, Cornerstone offers none of that.

### 4.3. CUE

CUE agrees with PG&E's position that its reliability performance is inferior to that of other utilities and that its reliability can be improved. CUE states that given proper resources, PG&E could (and should) provide better reliability to its customers.

CUE indicates that Cornerstone reliability improvements are a far cheaper solution than generation-side reliability improvements. However, CUE asserts that by excluding whole categories of potential reliability improvements, Cornerstone misses opportunities to either achieve greater reliability improvements than proposed in the filing, or achieve similar reliability improvements but at lower cost. Therefore, CUE agrees with TURN's proposal that a second phase of the 2011 GRC be created to evaluate cost – effective reliability measures. CUE asserts that such measures should include those rejected by PG&E for consideration in this proceeding such as increased staffing, shortening equipment restoration times, tree trimming beyond General Order 95 requirements, and any other measures PG&E may identify.

In general, CUE states PG&E's electric distribution capacity proposal and distribution automation proposal are reasonable. Also, given the significant benefits of the rural reliability program, CUE recommends that the program be expanded, by spending more money on fuses and reclosers for rural reliability than proposed and expanding the program to urban and suburban areas, as long as the additional fuses and reclosers are at least as cost-effective as the overall Cornerstone project. Lastly, CUE recommends that the Commission should require PG&E to keep its apprentice pipeline full as an additional means to improve reliability.

### 4.4. CCSF

CCSF supports efforts to improve the reliability and safety of PG&E's electric service system, provided that PG&E demonstrates that the costs of such improvements are reasonable. CCSF states that PG&E had a choice of a variety of programs to achieve the goal of improving reliability, and the main issue in this application is whether PG&E has selected the right programs.

According to CCSF, there are well-accepted methods in the electric utility industry to quantitatively compare the cost-effectiveness of potential reliability improvement programs, and PG&E failed to take advantage of any of the available methods. As a result, CCSF asserts that PG&E has failed to meet its burden of demonstrating the reasonableness of its Cornerstone proposal. That is, PG&E cannot demonstrate the reasonableness of its proposed programs without a showing that those programs are cost-effective, i.e., rank favorably among the possible alternatives in terms of their reliability bang for the buck.

Consequently, CCSF recommends that the Commission deny the application without prejudice and invite PG&E to submit in another proceeding (either a new application or a general rate case) properly supported proposals to

achieve the important goal of improving system reliability and safety. To support such proposals, PG&E should identify all reasonable alternatives and then evaluate and rank those alternatives using a cost effectiveness analysis of the type illustrated in CCSF's testimony.

In the event that Commission approves some of PG&E proposed expenditures for distribution automation, CCSF recommends that the Commission should direct PG&E to do a cost-benefit analysis to ensure that improvements are made to the most deserving circuits, regardless of voltage.

### 4.5. CFBF

CFBF recommends that PG&E's application be denied in its entirety. According to CFBF, PG&E is seeking approval of a very expensive capital investment program to address a perceived problem before the Commission has reasonably investigated and rationally determined that an actual problem exists. Further, the perceived problem underpinning Cornerstone – that PG&E's reliability is significantly worse than other utilities – is based solely upon a comparison of reliability metrics that both the Commission and PG&E have found invalid and meaningless. Lastly, CFBF asserts that PG&E's Cornerstone lacks the necessary studies and analyses to allow the Commission to determine whether the proposed projects are cost effective, provide sufficient value to PG&E's customers and are affordable, considering California's economic difficulties.

### 4.6. ESC

ESC supports the goal of Cornerstone to improve the reliability of the distribution system for the benefit of PG&E's customers. However, ESC is concerned that PG&E will not implement Cornerstone efficiently or effectively, and that a lack of recruitment, training, or a commitment to use PG&E

employees to perform the required design and engineering work will squander an ideal opportunity to make real improvements to distribution reliability and waste $2 billion of ratepayers' money.

### 5. Commission Review

By addressing electric distribution reliability now rather than as part of PG&E's test year 2011 GRC, as would normally be the case, this issue has been singled out as being important to the Commission. As stated in the February 23, 2009 assigned Commissioner and ALJ's Joint Ruling:

> …A reliably functioning electric distribution system is crucial for maintaining the welfare of the utility's customers and supporting the economy. It is preferable to begin the scrutiny and detailed analyses to determine whether major capital expenditures are necessary to maintain or improve distribution reliability and, if necessary, to determine the extent and timing of such expenditures, sooner rather than later ... (at 5).

While we have stressed the importance of reliability, it is only a part of our overall responsibility to ensure that utilities provide safe, reliable, and efficient service at reasonable rates.

PG&E's Cornerstone proposal is designed to increase electric distribution reliability, primarily through capital expenditures to bolster or replace certain aspects of its electric distribution infrastructure. As with any review of capital additions, our primary concerns are (1) whether there is a need for Cornerstone; (2) if there is a need, whether Cornerstone represents the optimal solution when considering alternatives and cost-effectiveness analysis that takes into consideration both quantifiable and non-quantifiable benefits.

While we will look at the Cornerstone proposal in total, we will also consider whether it is appropriate and reasonable to adopt portions of the

proposal rather than the total amount. There are a number of parts to PG&E's proposal, and some may stand up better than others to our review.

PG&E, as the applicant, has the burden of affirmatively establishing the reasonableness of all aspects of its request and proving that it is entitled to the relief in rates that is seeking. As with any GRC related matter, the standard of proof that the applicant must meet is that of a preponderance of evidence.

It is with these basic principles in mind that we will review PG&E's Cornerstone request.

### 6. Need for Cornerstone

According to PG&E, this filing is fundamentally about the policy question of whether PG&E should undertake the work, as proposed, to provide customers with a new level of improved reliability. Prior to filing the Cornerstone application, two Commissioners expressed concern about PG&E's level of reliability.[5] PG&E states that it took these comments seriously and developed Cornerstone, a 7-year program that is designed to (1) improve reliability through fundamental changes in system design; and (2) reduce SAIDI for PG&E's customers by 25 percent and SAIFI by 33 percent.

PG&E states that its reliability performance over the past four years has been better than the adequate service standard established in its 1999 GRC (D.00-02-046). Also, its performance has been generally consistent with the more stringent targets established by the Commission as part of PG&E's 2005-2007 Reliability Incentive Mechanism (D.04-10-034). However, according to PG&E,

[5] Commission President Peevey and Commissioner Simon made comments on PG&E's reliability performance at the July 26, 2007 Commission meeting.

the outages during the heat storm of 2006 prompted it to explore ways to improve reliability performance, and the 2007-2008 storm season reinforced the need to improve performance.

After considering its reliability performance, PG&E decided the most prudent approach would be to focus on strengthening the grid, increasing its flexibility, and installing automation to improve base reliability. PG&E believes that its customers will be best served by improving base reliability thereby providing performance benefits every day of the year – not just during extreme events. However, PG&E adds that the proposed infrastructure will also help reduce the duration and extent of outages during extreme or lower probability events and provide long-term benefits to its customers.

As indicated previously, CUE, ESC, and CCSF generally do not dispute the need for Cornerstone, while TURN, DRA, and CFBF argue that there is no demonstrated need for the proposed program.

### 6.1. Discussion

To begin, we note TURN's statement regarding the identification of Cornerstone as a way out of the hole created by the shortfall in its "Business Transformation" efforts. DRA also noted references linking Cornerstone with PG&E's attempts to reach an 8%+ compound annual growth in earnings per share. We understand that discussions with, and presentation to, investors would likely include the identification of specific planned projects and the relationship of such projects with respect to earnings and potential growth in earnings. We do not know whether or not Wall Street-related motivations for Cornerstone were significant or overriding in PG&E's formulation of the scope and cost of Cornerstone. However, our determinations in this proceeding are devoid of such concerns. This decision addresses the need for improving

PG&E's electric distribution reliability, not the need for maintaining or increasing shareholder earnings.

With respect to PG&E's statement that whether or not it should proceed with Cornerstone and provide its customers with a new level of improved reliability is fundamentally a policy question, our overarching policy is that PG&E must provide reliable electric service to its customers. However, that alone is insufficient reason for approving Cornerstone. We also have the obligation to ensure that rates are reasonable. Whether characterized as a policy or a basic ratemaking principle, for a capital program or project such as Cornerstone, there must be a compelling demonstration of need. A broad policy such as the desirability of maintaining or improving electric distribution reliability can only be implemented at the program or project level if there is demonstrated need for the particular programs or projects. PG&E has the burden to demonstrate such need for Cornerstone. After considering the evidence, we conclude that the need for Cornerstone has not been demonstrated.

First of all, the scope and costs of Cornerstone are substantial. While the revenue requirements for the years 2010 through 2016, as calculated by PG&E, amount to $1.1 billion, cost recovery for the project will extend far beyond that timeframe and result in a revenue requirement totaling closer to $6 billion. Also, while the outages during the heat storm of 2006, the 2007-2008 storm season, and Commissioners' comments with respect to outages are reasonable factors for PG&E to consider in evaluating the state of its electric distribution reliability, these factors alone are not sufficient for determining that a program of Cornerstone's magnitude is necessary. PG&E acknowledges that Cornerstone will not prevent infrastructure failures, but states that, in general, the proposal will allow PG&E to restore service to customers faster and to isolate impacted

lines to minimize the number of customers affected by such failures. While reducing the impacts of outages is a worthwhile goal, as discussed later in this decision, a significantly less costly program from that proposed in Cornerstone can still capture a substantial amount of such benefits. There is no good evidence to indicate what level of overall improved reliability is necessary or appropriate. Without knowing this, there is no way for us to determine that a program as substantial as Cornerstone is necessary.

While historical SAIDI and SAIFI comparisons indicate that PG&E's reliability is lower than specified comparison groups, there are reasons for the discrepancies, and the Commission has previously stated:

> As we have found in previous decisions, it is not particularly useful to compare utilities with different customer counts, different geography and weather patterns, different system configurations, not to mention different methods of calculating SAIDI, SAIFI, and MAIFI. Given these factors, it is extremely unlikely that any two utilities would ever achieve similar performance results; therefore, we are reluctant to place much faith in such comparisons. We believe that the more appropriate comparison to make is a comparison between PG&E's historical performance and its current performance.[6]

PG&E has not provided any compelling reasons for changing this previous determination. The data simply shows that, with all the indicated qualifications, PG&E's electric reliability is lower than groups of other utilities. It does not demonstrate the need to narrow that gap to any particular level, if at all.

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[6] D.04-10-034, at 73.

At this point, the more compelling evidence, with respect to the need for Cornerstone, is that:

1. PG&E's current electric distribution reliability is at least adequate, as established by the Commission in D.00-02-046.
2. Projects necessary to maintain this adequate level of electric distribution reliability are addressed in PG&E's GRCs, including the current 2011 GRC.
3. A value of service (VOS) study was conducted by PG&E in 2005.[7]
4. In the 2005 VOS study, it is indicated that current PG&E customers in all classes report in high numbers that the service they are receiving meets or exceeds their expectations for service quality and that most customers participating in the research are receiving acceptable service, as a function of outage frequency, for service interruptions of all types.[8]
5. There is no new VOS evidence that supersedes the 2005 VOS study.

The preponderance of evidence does not support the need for a program with the scope and cost of Cornerstone. For that reason, PG&E's request for cost recovery of Cornerstone will be denied.

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[7] The 2005 Value of Service Study Pacific Gas & Electric Company, dated December 14, 2005, was prepared for PG&E by Freeman, Sullivan & Co. The Executive Summary is contained in Exhibit 103.

[8] See Exhibit 103, Executive Summary, at 6.

## 7. How to Proceed

### 7.1. Cornerstone

Since Cornerstone, as proposed, will not be adopted, we must at this point determine how to proceed. PG&E indicates that its recently filed 2011 GRC will include base reliability work essentially aimed at maintaining the current levels of electric distribution reliability. If Cornerstone is rejected in total, we would not be addressing measures to improve overall electric distribution reliability until the 2014 GRC or until PG&E makes another separate filing such as for Cornerstone.

In considering Cornerstone separately now rather than deferring it to the 2011 GRC, we indicated our overall concern with respect to electric distribution reliability. Since Cornerstone was designed to significantly improve that reliability, we determined it was preferable to address the request sooner rather than later. We have done that and determined that Cornerstone, as proposed, is not necessary. However, electric distribution reliability is still important and we support necessary and optimal programs or projects that will increase such reliability. In that vein, there are some elements of Cornerstone that we feel are attractive in that they address particular reliability needs in a more focused and cost-effective manner than the total Cornerstone proposal. We address those aspects of Cornerstone in the remainder of this decision rather than deferring such consideration to a later proceeding.

### 7.2. Future Proceedings

With respect to future proceedings, PG&E should address all electric distribution reliability matters in an integrated fashion through the GRC process. This will allow consideration and prioritization of all types of reliability programs and projects (existing, expanded or new), not only in the context of

reliability but in the context of the overall base revenue requirement. PG&E should implement a process to determine an appropriate path to take with respect providing an appropriate level of reliability to customers. That includes determining whether it would be necessary and appropriate to propose a large scale project such as Cornerstone, something more moderate, or nothing at all. In any case, PG&E should be ready to justify the path it chooses.

Basic to that justification process is a VOS study. We left it up to PG&E as to whether it should conduct a new VOS study as part of the process for justifying the need for Cornerstone,[9] and PG&E chose not to conduct one. Therefore, the latest information with respect to VOS for PG&E's customers is the 2005 study. This study is inadequate for going forward for the years 2014 and beyond. As part of its next GRC (at this point scheduled for test year 2014) PG&E should conduct a new VOS study for use, at least in part, in determining and justifying its electric distribution reliability needs. We will leave it up to PG&E to determine what other information is necessary to support its position with respect to such needs.

For any proposed reliability programs or projects, PG&E should, as part of its processes, consider all reasonable alternatives, including the types of solutions proposed by other parties in this proceeding. In determining what is

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[9] See February 12, 2009 assigned Commissioner Ruling and Scoping Memo, at 11 – 12. The ruling left how to best justify Cornerstone up to PG&E, indicating that "[i]n the end whether the request stands or falls depends on whether or not PG&E demonstrates that the request is just and reasonable in light of concerns expressed by other parties as well as by the Commission." It was left to PG&E to decide whether a new VOS study or cost/benefit analyses were necessary for such purposes. In not including either in its updated testimony, PG&E apparently decided they were not necessary.

optimal, we expect PG&E to conduct appropriate levels of cost-effectiveness analyses.[10] This does not mean that a project that does not have a benefit to cost ratio greater than 1.0 should necessarily be rejected from consideration. Knowing the extent of how cost-ineffective a project may be will aid in the process of determining whether it is reasonable to proceed with the project, or how the project should be prioritized, when considering other factors such as the severity of the problem being addressed and non-quantifiable benefits.

## 8. Adopted Elements of Cornerstone

Our rejection of Cornerstone as proposed does not mean that current reliability must remain static or that it is unnecessary to address the needs of certain customers who may receiving a lower level of reliability than other PG&E customers. Nor does it mean that we should ignore identified problems with PG&E's electric distribution system that may affect reliability.

Also, while we did not find the use of reliability index comparisons to be a compelling reason for adopting Cornerstone, we do recognize the value to PG&E's customers in improving PG&E's own SAIDI and SAIFI measures over time by implementing needed projects in a cost-effective manner. In considering the different elements of the Cornerstone proposal, we are looking to see if such value can be achieved by adopting a scaled down version of PG&E's proposal.

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[10] As CCSF indicates in its opening brief, at 15-16, the type of cost effectiveness analysis, whether it is at a micro or macro level, depends on the scope of the proposal. In the case of Cornerstone, CCSF states PG&E should have used a macro-level analysis. In the case of KEMA and Quanta studies those studies were focused on a particular geographic area and they were able to drill down to the more micro levels.

## 8.1. Distribution Automation

### 8.1.1. PG&E's Proposal

In this proceeding, PG&E is proposing to spend $605 million in capital to install a distribution automation system referred to as fault location, isolation and service restoration, or "FLISR," on 1,200 circuits in urban and suburban areas between 2010 and 2016. More specifically, PG&E plans to automate all of its 17-kilovolt (kV) and 21-kV circuits in urban and suburban areas (approximately 400 feeders) and approximately 800 12-kV feeders, which represents 56% of all of PG&E's urban and suburban 12-kV feeders. In addition to the actual line devices installed as a part of Cornerstone, PG&E will also automate circuit breakers, update substation equipment and purchase or use a communication system to allow the automated devices to transmit information and receive instructions. PG&E states that its proposal to install an estimated 6,000 line devices and pieces of communication equipment will provide significant automation on its system, similar to what other utilities are doing across the United States for their customers. PG&E adds that automating these circuits in urban and suburban areas will have the greatest impact on the largest number of customers and will create a significantly smarter grid. Also, while the distribution automation proposal is a significant undertaking, it will provide a substantial increase in PG&E's reliability performance and will provide long-term, concrete reliability benefits for PG&E customers.

### 8.1.2. Discussion

PG&E states that it elected to automate 1,200 circuits, including most of the 17-kv and 21k-v circuits and 800 12-kv circuits, because it recognized that performance of certain circuits varied over time and that automating all of the identified circuits provided the most significant reliability improvements for

customers and created a much more robust distribution system. This may all be true, but we have already determined that PG&E has not demonstrated the need for a program of Cornerstone's magnitude. At this point, there is insufficient justification for authorizing capital expenditures amounting to over $600 million to maximize reliability improvements or create a more robust distribution system. At some future point in time, this may change. PG&E will have the opportunity to justify the need to do so in future GRCs when it evaluates its reliability requirements more comprehensively and in more detail.

What is of interest now is the identification of the worst-performing circuits. We consider worst-performing circuits to be a problem simply as a matter of equity. While it will always be the case that some customers, for various reasons, will receive higher or lower levels of reliability than other customers, it is important that the needs of customers who continually receive significantly poorer service be addressed.

In its testimony, DRA includes graphs that show, for the 12kv, 17kv and 21kv circuits in urban and suburban areas, there are distinctly identifiable worst circuits in each of the categories.[11] DRA argues that PG&E should be addressing the worst-performing circuits as part of the Company's regular business activities in the GRC, even without its Cornerstone proposal.

As part of its second alternative recommendation, TURN recommends that the Commission adopt funding of $129.7 million in capital expenditures and $7.7 million in expense for automating PG&E's worst 400 circuits, regardless of voltage level, over the time period 2010 through 2013. This

[11] See Exhibit 503, at 6 – 10.

recommendation would capture the identifiable worst performing circuits shown on DRA's graphs, as well as for 4-kv circuits. TURN notes that automating the 400 worst circuits would cost $7.2 million per minute of SAIDI saved, while the additional 817 circuits not in the group of 400 worst would cost $28.6 million per minute of SAIDI reduction. TURN also bases its estimate of cost assuming three automated zones per feeder,[12] and notes that automating more than three zones over all of the 1,217 circuits PG&E wants to automate only nets a SAIDI reduction of 1.17 minutes, but adds $133.4 million in costs.

While TURN's proposed budget is based on implementing distribution automation on the 400 worst-performing circuits, TURN recognizes that what gets done may be somewhat different from that. TURN states that PG&E needs to do what is cost-effective and even some of the 400 worst circuits may not be cost-effective if the cost of automating them and building additional connectivity is prohibitively expensive. TURN indicates that the purpose of its proposed budget is to require PG&E to prioritize its program so that it obtains the most reliability benefit for the least cost (recognizing operational constraints).

[12] The number of automated zones on a feeder is the primary driver of reliability benefits. PG&E assumes three to five zones per feeder in its analysis.

If certain circuits fall within this worst-performing group, but the combined cost of automating them and building additional connectivity is prohibitively expensive (e.g., because a project requires five miles of underground line or a new transformer bank, etc.), then it may be that PG&E skips some circuits and implements automation on the 406th worst-performing circuit instead. Similarly, TURN states that it does not mean to suggest that PG&E automate only three zones on every circuit. There may be a few cases where automating four zones would net a much higher return than it would on the average circuit.

TURN's alternative recommendation for distribution automation is a reasonable means for addressing our reliability concerns with respect to poorly performing circuits. We will adopt its recommendations as described above, but with a slightly modified cost as described below.

TURN adjusted PG&E's costs in a number of ways. For purposes of determining a reasonable budget we will use TURN's three zone assumption. Also, TURN escalates PG&E labor by forecasted factors for the years 2012 and 2013. This is preferable and comparable to what is done in GRCs, as opposed to PG&E's use of the last negotiated rate for years beyond the labor contract timeframe.[13] Also TURN used a value of $75,000 for underground devices as opposed to PG&E's use of $100,000. PG&E indicates that the cost is uncertain and both estimates are reasonable. We will use TURN's estimate.

We will adopt $136.341 million in capital expenditures for automating the 400 worst-performing circuits. This reflects TURN's

[13] The adopted labor escalation factor for 2008 to 2012 is 1.1449 (as opposed to PG&E's estimate of 1.1587) and the adopted labor escalation factor for 2008 to 2013 is 1.1778 (as opposed to PG&E's estimate of 1.2021).

recommendation but allows PG&E to recover limited costs for pole replacements and vehicles. TURN does not assert that these costs are not necessary or related, and to the extent possible we prefer to consider related costs together in one proceeding. Today's adopted pole replacement and vehicle costs are commensurate with the reduced level of distribution automation capital funding and add $6.648 million, $5.678 million for pole replacement costs and $0.970 million for vehicles.

We will adopt TURN's estimate of $7.7 million as the distribution automation expense that is related to the adopted capital proposal.

## 8.2. Feeder Interconnectivity

### 8.2.1. PG&E's Proposal

PG&E proposes to upgrade feeders in urban/suburban areas to have more conductor capability, ties and associated equipment in place to transfer customers within three-to-five switching steps when restoring service. According to PG&E, this work directly supports its proposal to install FLISR systems on approximately 1,200 circuits, adding that the estimated reliability benefits of distribution automation cannot be achieved without an appropriate level of feeder interconnectivity. In addition, PG&E proposes to enhance the level of interconnectivity on circuits it does not automate. PG&E forecasts capital costs of $697.167 million related to these efforts.

To determine the amount of work necessary to improve feeder interconnectivity, PG&E states that its engineers analyzed each feeder within urban/suburban distribution planning areas (DPAs) and identified instances where five or more switching steps are necessary to restore all customers following the failure of a feeder. As explained it its testimony, PG&E used the analysis associated with the loss of a feeder and number of transfers as a proxy to

estimate the cost to provide the level of feeder interconnectivity necessary to support the distribution automation project proposal and other interconnectivity enhancements. After identifying the work necessary to resolve feeder deficiencies, a multiplier of 2.8 based on a weighted average of estimated zones per circuit[14] was applied to estimate the amount of work.

Using this analysis, PG&E has estimated an expenditure level it believes is appropriate but has not developed a specific list of projects pending a detailed circuit-by-circuit analysis. PG&E states that if the Commission approves its request, engineers would then perform the detailed analysis necessary to identify the specific projects. Their primary focus would be to identify the work necessary to support the deployment of distribution automation and their secondary focus would be to identify work that will enhance the interconnectivity of circuits that are not automated.

#### 8.2.2. Discussion

We have adopted a certain level of distribution automation as discussed earlier in this decision and agree that a certain amount of feeder interconnectivity is necessary to accommodate that level. However, with a minor exception, we will not adopt further proposed expenditures to enhance the interconnectivity of circuits that are not automated. Again, the need for a broadly based program has not been justified. PG&E may request such enhancements in future proceedings provided it can justify the need and costs for such a program.

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[14] Multiplier equals weighted average of estimated zones per circuit minus one because the zone served by the breaker does not need a tie.

As part of its alternative recommendation, TURN recommends that the Commission approve an escalated capital expenditure of $~~44.07~~45.538 million for connectivity to support the distribution automation portion of its alternative recommendation. This includes $7.4 million of "low-hanging fruit" identified in its testimony plus some additional circuitry to support distribution automation. TURN's recommended budget is based on the average unit cost per circuit of the lowest 60% of connectivity projects to obtain four transfers, a multiplier of 2.0 (the maximum for its proposal to automate three zones), and 32% of total circuits being completed in three years.

We previously adopted TURN's proposal for automating the 400 worst-performing circuits. We will also adopt TURN's recommendation with respect to the related needs for circuit connectivity. It will provide a reasonable amount of capital for improving connectivity, recognizing that the existing distribution system has a significant amount of existing connectivity and that while connectivity work related to distribution automation may be needed, PG&E should prioritize the projects it undertakes by skipping over very expensive projects with limited reliability benefits.

Additionally, we will adopt the TURN recommendation to invest approximately $7.4 million in the cheapest of the capacity connectivity projects that actually have reliability benefits.[15] TURN notes that PG&E should be able to realize over 1 minute of SAIDI by such investment. In general, we support specific reliability improvement programs or projects that are cost-effective.

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[15] In Exhibit 121, at 79-80, TURN shows that in dividing the projects into quintiles, the first two quintiles provide 43% of the total reliability benefits for all of the 194 projects for only $7.4 million or 6.5% of the $114.6 million total cost.

### 8.3. Substation Transformer Emergency Capacity

#### 8.3.1. PG&E's Proposal

PG&E is proposing to change its planning process related to emergency transformer deficiencies to ensure there is adequate back-up for these critical pieces of equipment, reduce the risk of customers experiencing long-duration outages and ensure there is available capacity to fully implement the distribution automation proposal. Because utilization factors are high, lead times and costs for replacement units have increased and mobile transformers can take up to 24 hours to install, PG&E believes it is inappropriate to rely on mobile transformers to resolve substation transformer emergency deficiencies. Instead, PG&E proposes that urban/suburban DPAs have adequate emergency capacity installed within the DPA to cover the loss of a substation transformer bank without having to rely on a mobile transformer to restore service. Under PG&E's Cornerstone proposal, PG&E will plan for adequate capacity to restore all customers using the remaining capacity in the DPA following the failure of any transformer bank. This means PG&E will rely on the emergency ratings of the remaining transformers and other facilities as necessary to restore customers. Mobile transformer would instead be used to return the remaining transformers and facilities to their normal ratings.

PG&E's states that continued use of mobile transformers as defined in the current emergency capacity criteria would negate the benefits associated with Cornerstone proposal. Specifically continued reliance on mobile transformers means: (1) extended customer outage risks would not be reduced; (2) emergency capacity would not be available during all loading periods, especially the higher loading periods; (3) FLISR systems may not operate during

the higher loading periods affecting customers as well as the estimated SAIFI and SAIFI improvements; (4) there would be an increase in the overall risk around critical equipment that is rising in cost and experiencing longer lead times; (5) there would be no life extension of current substation transformers and equipment; and (6) Cornerstone would not ultimately correct a system with known emergency substation transformer deficiencies which increases the likelihood of single failures cascading into larger events affecting thousands of customers.

As substation transformers, new feeder breakers and associated distribution facilities are installed to provide the emergency capacity PG&E is recommending, PG&E states it will coordinate that installation work with the feeder interconnectivity work to ensure a fully integrated distribution system. Together, these new facilities will support PG&E's distribution automation proposal by providing enough capacity to allow automated feeders to operate year-round.

Based on its proposal to phase out the use of mobile transformers to provide substation transformer emergency capacity, Cornerstone includes 95 specific transformer bank projects over the years 2011 through 2016 at a total capital cost of $610 million.

The specifics of PG&E's proposal were addressed by TURN and DRA in their opposition to the request.

#### 8.3.2. Discussion

In rebuttal PG&E states:

> …Again, PG&E stresses that [Cornerstone] is fundamentally a policy question of whether PG&E should undertake the work to move to a new level of reliability performance, distribution system flexibility,

> and robustness. If so, because distribution substation transformers are the single most important piece of equipment in the electric distribution system, PG&E believes it is appropriate for the Commission to include this part of the company's proposal, which includes a higher level of emergency substation emergency capacity in urban/suburban areas to reach the new goal.[16]

While reliability performance, distribution flexibility, and robustness are laudable goals, the need to move to higher levels of each has not been demonstrated. Hence, as discussed earlier, we have rejected PG&E's Cornerstone proposal. Consequently, it would not be appropriate to make the wholesale changes proposed by PG&E with respect to substation transformer emergency capacity. In addition, we are somewhat troubled by PG&E's specific proposal to make the change to rely less on mobile transformers.

In opposing PG&E's substation transformer proposal, TURN makes the following important points, most of which were not rebutted by PG&E:

- PG&E's distribution planning guidelines have historically required a cost-benefit analysis prior to the installation of substation emergency capacity projects, in order to reduce costs while maintaining reliability.
- The outages the emergency capacity project would address are extremely rare.
- PG&E's Substation Asset Management Program has significantly improved transformer reliability.
- Substation transformers are extremely reliable.

[16] Exhibit 2, at 2-3 to 2-4.

- Peak periods are quite narrow in most locations, making the likelihood of a transformer failure during peak load small.
- PG&E's emergency capacity program would not have affected most of the 33 transformer outages with associated customer outages that occurred from 2002 – 2008.
- The emergency capacity project is clearly unreasonable when subjected to TURN's elementary value of service analysis.
- The emergency capacity program will contribute miniscule benefits to SAIDI and SAIFI for $610 million.
- With respect to the danger of long outages, the outages that have been observed total 0.82 minutes of outage per customer per year.
- By fragmenting Cornerstone from GRC costs, PG&E is creating a misleading and incomplete analysis. PG&E is already taking several other steps to rate its system more conservatively and build more "normal" capacity to reduce normal overloads. Such steps are already funded or proposed for 2011 GRC funding.
- The purpose of mobile transformers is to maintain flexibility to use them in emergencies, not to use them as temporary replacements for aging equipment as proposed by PG&E. TURN submits that if the Commission believes there is a small reliability problem with PG&E's transformer fleet, it should encourage PG&E to acquire a few more mobile transformers instead of spending half a billion dollars on new substation transformers. TURN notes the Energy Policy Act of 2005 encouraged the use of mobile transformers.

- With respect to distribution automation benefits, the bulk of such benefits come from speeding up what PG&E has always done with its system manually. Only incremental and second order benefits would come from adding any capacity elsewhere on the system. Also, emergency capacity does not provide normal capacity, according to PG&E itself. If these benefits were truly significant, PG&E would have spent time and effort quantifying them.
- The potential for life extension of transformers is an economic benefit. Engineering literature suggests that the optimal loading of distribution transformers can be analyzed using cost-benefit and value of service analysis – the very techniques that PG&E has eschewed in this application.

First of all, not only has the overall need for PG&E's Cornerstone proposal not been shown, the specific need for the substation transformer emergency capacity proposal has also not been demonstrated. It is not clear what the problems are that PG&E's proposal would solve. TURN's evidence suggests that, with respect to substation transformer emergency capacity, the extended customer outage risk is low and the bulk of FLISR benefits associated with distribution automation do not depend on the more redundant system that PG&E's proposal would provide.

Even if there were a problem with respect to substation transformer emergency capacity, there is not a preponderance of evidence that indicates that PG&E's proposal to not rely on mobile transformers is the optimal solution. For instance, TURN suggests the possibility of incorporating more mobile transformers rather than less, noting that the Electric Power Research Institute is conducting research into cheaper emergency mobile transformers with 20% lower cost, 25% less weight and 50% faster installation.

At this point, we suggest that as part of future reliability related analyses, PG&E take into consideration TURN and DRA criticisms of its proposal in this case in justifying the need for improving substation transformer emergency capacity and choosing and prioritizing the optimal solution to address that need.[17]

While we will not adopt PG&E's approximate $610 million substation transformer emergency capacity proposal, and expect that at least in the short term PG&E will rely on mobile transformers to address related problems, we do note that PG&E's individual bank loss deficiency studies indicate there are 191 substation emergency deficiencies and the proposal for 95 specific projects addresses deficiencies that range from slightly more than 0.1 megawatt (MW) to 38.6 MW. Even though the risk of outages related to substation emergency capacity appears to be low, we do not wish to overextend the mobile transformers. We believe it is prudent to keep the potential number of deficient transformer banks in check by adopting a limited number of specific projects for those substations that have the largest MW deficiencies. This will help ensure the continued viability of mobile transformer use for emergency

[17] DRA's criticism of the proposal included, among other things, that the capacity costs are not justified by the small benefits; the small reliability improvements are not all due to Cornerstone; PG&E did not update its analysis; the details necessary to conduct an analysis of specific projects were not provided to DRA; and changes in the California economy need to be reflected in the DPA analysis. We do note that PG&E did rebut much of what DRA said. However, with respect to analysis of specific projects, we expect that much of DRA's concerns will be alleviated if PG&E's follows the directives of this decision in choosing and documenting optimal solutions after considering the severity of the problem, reasonable alternatives, appropriate cost-effectiveness analyses, and non-quantifiable benefits.

capacity purposes. The list of projects provided by PG&E for the period 2010 through 2013 shows that there are 23 substations with deficiencies greater than 15 MW. 15 MW appears to be a reasonable cut off point to address our immediate concern to not overextend the use of mobile transformers. If spread over the time period 2011 to 2013, based on PG&E's cost estimate, the capital expenditures total $108.220 million for substation transformers.[18] We will include an additional $5.329 million for associated feeder breakers, $0.962 million for distribution substation planning, $1.763 million for distribution capacity project management, and $1.487 million for substation maintenance expenses.[~~18~~19] In future proceedings, assuming the continued use of mobile transformers, we expect that more detailed analyses of need will provide a more appropriate delineation of whether such a cut off point based on MW deficiency or number of deficiencies is necessary, and, if so, what an appropriate value would be.

### 8.4. Rural Reliability

#### 8.4.1. PG&E's Proposal

PG&E states that it is including a rural component to this filing for a number of reasons. First, the performance of PG&E's electric distribution system in rural areas is noticeably worse than other utilities. Second, the Company

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[18] TURN claims that PG&E's unit cost for substation transformers is high. However, we will use PG&E's estimates, noting that its costs are based upon an analysis of all projects over a full year and compared to prior year's unit costs. We prefer this to TURN's analysis that used only three data points in its analysis.

[~~18~~19] These amounts reflect 11 breakers, reduced distribution substation planning and distribution capacity project management costs based on the ratio of adopted capital expenditures to PG&E requested capital expenditures for those categories, and substation maintenance expenses associated with 8 transformers installed in 2011 and 8 transformers installed in 2012.

believes that rural circuits are likely less suitable for distribution automation because circuit ties may be inadequate and/or establishing communication between all the devices may be problematic. Third, rural circuits are generally longer than suburban/urban circuits. According to PG&E, this makes them good candidates for devices that will mitigate the number of customer minutes and interruptions due to faults on tap-lines or sections of mainline that are far away from Company service centers.

PG&E's proposes to install approximately 500 reclosers and 5,000 fuses on 16 rural circuits between 2010 and 2016. PG&E estimates a total capital expenditure of $62.4 million to install these devices which, when fully installed and operational, will improve annual SAIDI and SAIFI values by approximately five percent and seven percent, respectively, over the 2004 to 2008 average. PG&E has also estimated and requested $0.236 million in expenses associated with the rural reliability program.

PG&E states that its testimony from the 2007 GRC included information regarding reliability and the installation of protective devices, and its proposal in this proceeding simply represents more of the same type of work described in that rate case.

#### 8.4.2. Discussion

If nothing else, the reliability comparison information provided by PG&E reveals that among PG&E customers, those in low density areas, principally rural, receive less reliable service than those in high density areas. Similar to the worst circuit program that is adopted for distribution automation, the rural reliability program addresses problems for certain PG&E customers who, as a matter of course, receive worse service than other PG&E customers. Additionally, TURN indicates that, while it did not analyze the rural reliability

proposal in detail, it seemed on the surface to be cost-effective. For that reason, TURN indicated that despite its primary recommendation that the entire Cornerstone project be rejected, it would not object if the Commission saw fit to reject everything other than the rural reliability component. In its alternative recommendation, TURN accelerated PG&E's 2010 to 2016 proposal over its recommended 2010 to 2013 time period. CUE also recognized the cost-effectiveness of the rural reliability proposal and recommended that the fuse and recloser program be expanded where cost-effective, not only for rural areas but for urban and suburban areas as well.

Because we see a need for improving rural reliability and PG&E's proposal appears to be cost-effective, we will adopt PG&E's proposal to install 5,000 fuses and 500 reclosers on rural circuits. Because this decision's authorization for reliability improvements extends only through 2013, we will accelerate the installation over the 2010 through 2013 time period, as recommended by TURN. We will not expand the proposal further as recommended by CUE, because it is not clear what PG&E has or has not included in its 2011 GRC for related improvements. The need to further expand the program can be appropriately evaluated in future GRC filings. For this proceeding, we adopt $59.294 million in capital expenditures and $0.079 million in expenses for rural reliability, as discussed below.

In response to DRA's claims that there is insufficient justification for the estimated capital and expense estimates, PG&E indicates that the number of installations was determined by reviewing data provided by distribution engineers and performing an analysis of primary circuit connectivity, and the unit costs were based on judgment after reviewing what was included in the 2007 GRC, a sampling of project authorizations and discussions with other

engineering management personnel. With respect to the number of poles that would need to be replaced, PG&E states that judgment was used because there are no data that provide better values. While it may not be based on detailed calculations, PG&E has sufficiently explained its estimating methodology. In general, there is no prohibition against using subjective judgment of experienced personnel in making an estimate. We evaluate such methodologies along with whatever else is proposed and determine what is most reasonable. In this proceeding, with respect to the rural reliability proposal, there are no other estimating methodologies on the record and there is no evidence that PG&E's results are unreasonable. Therefore, for the most part, we accept PG&E's cost estimates for rural reliability as being reasonable. They have been adjusted only for the cost per pole recommended by DRA ($7,750 versus $8,200 estimated by PG&E) and accepted by PG&E and the labor escalation factors for 2012 and 2013 as recommended by TURN and discussed earlier for distribution automation.

### 8.5. SAIDI and SAIFI Benefits

PG&E's Cornerstone request includes $1.997 million in capital expenditures over the 2010 through 2016 timeframe. PG&E claims that the benefits of its Cornerstone proposal are a reduction of 39.3 minutes per customer per year for SAIDI and a reduction of 0.405 interruptions per customer per year for SAIFI. In authorizing $357 million in capital expenditures over the 2010 through 2013 timeframe, we have selected the most cost effective parts of the project consistent with the recommendations of TURN. Consequently, the SAIDI and SAIFI benefits associated with this decision correspond to those claimed by TURN, namely, 26.6 minutes per customer per year for SAIDI and 0.265 interruptions per customer per year for SAIFI. Therefore, we estimate that this decision will capture approximately 68 percent of PG&E's claimed SAIDI benefit and 65 percent of PG&E's claimed SAIFI benefit for 18 percent of the

capital expenditures requested by PG&E.[19][20]

[19][20] Actual SAIDI and SAIFI benefits will depend on which projects PG&E implements through its prioritization and selection process. Also, the cited TURN and decision SAIDI and SAIFI benefits do not include benefits associated with the $60.446 million in authorized capital expenditures for substation transformer emergency capacity. Such benefits are likely to be relatively small. PG&E estimated SAIDI and SAIFI reductions of 3.6 minutes per customer per year and 0.037 interruptions per customer per year in conjunction with its $517 million substation transformer emergency capacity capital expenditure request.

## 9. Adopted Costs

The following table shows the adopted capital expenditures and expenses for the time period 2010 through 2013.

| **Adopted** | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| | | (Dollars in thousands) | | | |
| **Capital Expenditures** | | | | | |
| Distribution Capacity | | | | | |
| Feeder Interconnectivity | $ 4,992 | $ 10,779 | $ 14,706 | $ 15,061 | $ 45,538 |
| Substation Capacity | 310 | 38,900 | 39,972 | 35,330 | 114,512 |
| Project Management | 174 | 606 | 510 | 473 | 1,763 |
| Distribution Automation | 15,547 | 32,066 | 43,804 | 44,924 | 136,341 |
| Rural Reliability | 4,229 | 15,968 | 19,313 | 19,784 | 59,294 |
| **Total Capital Expenditures** | $ 25,252 | $ 98,319 | $118,305 | $115,572 | $ 357,448 |
| | | | | | |
| **Expenses** | | | | | |
| Distribution Capacity | | | | | |
| Feeder Interconnectivity | $ - | $ - | $ - | $ - | $ - |
| Substation Capacity | - | - | 487 | 1,000 | 1,487 |
| Distribution Automation | - | 754 | 2,336 | 4,563 | 7,653 |
| Rural Reliability | - | 5 | 25 | 49 | 79 |
| **Total Expenses** | $ - | $ 759 | $ 2,848 | $ 5,612 | $ 9,219 |

## 10. Implementation Flexibility

We expect PG&E to optimize the funds authorized by this decision to mitigate the identified problems of worst-performing circuits, emergency substation capacity and rural reliability. In identifying and prioritizing projects[20][21] to determine how the money should be spent, PG&E should consider the severity of the problems, options available, cost-effectiveness analysis, and non-quantifiable benefits. In that respect PG&E has flexibility as to how it implements the improvements and what it spends. With exception of shifting funds to the emergency substation capacity program, we will allow PG&E to shift funds between programs. Regarding emergency substation capacity, we prefer to limit this aspect of the authorization to, at most, the identified projects with 15 MW deficiencies or more.

## 11. Cost Recovery

PG&E proposes the following regulatory ratemaking treatment for the Cornerstone costs:

- Rates will be set initially to recover forecast Project costs, with true-up to actual costs achieved through a proposed new balancing account.
- PG&E requests that the Commission find the forecast costs for the initiatives in this Application reasonable. If, after completing four years of Project work, PG&E's forecast of costs to Project completion has increased, PG&E will request Commission approval of the revised forecast.

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[20][21] In future proceedings, we expect PG&E to go through this process to justify proposed projects as part of its filings and not as part of the implementation of a final decision.

- Distribution revenue requirements and rates covering this Project will be revised annually in the Annual Electric True-Up (AET) advice letters, or as otherwise authorized by the Commission, to include the forecast revenue requirement for the year in the Distribution Revenue Adjustment Mechanism (DRAM) base revenue amount and an adjustment for the difference between the forecast and recorded revenue requirement.

PG&E believes this proposal fairly balances risks between shareholders and customers, while allowing the Project to proceed in a timely manner, consistent with Commission direction. Furthermore, with this proposal, PG&E's shareholders will also receive assurance of cost recovery in a timely manner.

While DRA is recommending no ratepayer funding for Cornerstone, if funding is authorized, DRA recommends a one-way balancing account to track the expenditures. DRA also opposes PG&E's proposal that after four years of project work, PG&E can seek recovery of additional expenditures through its fifth annual report. DRA states that PG&E's proposal is equivalent to giving PG&E a signed blank check, as this would provide PG&E a second opportunity to seek additional funding for the same project through an annual report without any credible opportunity for DRA and other intervenors to review and analyze the reasonableness of any requested additional costs. Therefore, DRA is recommending that, if the Commission authorizes funding for Cornerstone, the Commission adopt a firm funding level over the life of the project in which PG&E cannot recover expenditures above the Commission authorized funding level. Additionally, the one-way balancing account allows for the return to ratepayers of any authorized Cornerstone funding that is not spent by the utility.

Similarly, if the Commission opts to approve some spending and permits PG&E to institute separate ratemaking for Cornerstone, TURN recommends the following:

1. A balancing account should be a one-way balancing account. PG&E should not be provided an opportunity to spend more than any amount that is adopted as part of a ratemaking mechanism that is separate from the GRC.
2. The balancing account should be balanced on a yearly basis—if there is underspending in a particular year, the balance must be returned to ratepayers in the concurrent year, and not at the proposed end of the program.
3. The Commission should adopt the amount of funding it decides is appropriate, decide how much of that amount should be in spent in each year of the program, and then only allow recovery for the first three years of the program. This will give PG&E a chance to prove its performance. If it does prove its performance in the first three years of the program, then it can come back in the subsequent rate case and request whatever additional funding it might need for a reasonable extended program.

### 11.1. Discussion

Because of the way in which this application is resolved, it is necessary to modify PG&E's cost recovery proposal. First of all, as opposed to PG&E's request for a six-year cost recovery authorization (2011-2016), the cost recovery authorized by this decision is for the period 2011 through 2013 only. From 2014 on, issues related to increasing electric distribution reliability will be addressed in the GRC process.

To ensure that authorized funds are used as intended, we will adopt PG&E's proposal to initially set rates based on the adopted forecast of costs and to establish a new balancing account. As described earlier, PG&E has flexibility in how it spends authorized funds, with respect to the specific projects that are

initiated and completed. Also, in determining optimal spending, we will give PG&E the flexibility of moving funds from ~~on~~one year to another, within the three~~-~~ year period. As proposed by PG&E, distribution revenue requirements and rates covering the projects authorized by this decision will be revised annually in the AET advice letters to include the forecast revenue requirement for the year in the DRAM base revenue amount and an adjustment for the difference between the forecast and recorded revenue requirement. However, beginning in 2014, use of a separate balancing account to accumulate revenue requirements will end and project costs should be recovered through the GRC process.

PG&E should control its expenditures to remain within the three year capital and expense amounts adopted by this decision. We will therefore not provide the opportunity as part of this proceeding for PG&E to recover any costs in excess of what is authorized over the 2010 through 2103 period. However, to the extent that PG&E does not spend the adopted amounts, appropriate refunds or credits to ratepayers should be made.

With respect to reasonableness, due to the flexibility that PG&E has in spending authorized funds, we are not able to determine at this time whether or not the company's decisions regarding the specific projects to fund and when to construct them are reasonable. For that reason, we will require PG&E to submit annual reports as discussed below. Other than that, expenditures authorized by this decision will be subject to the same reasonableness standards as for projects that are forecasted and adopted in the GRC process. That is, once completed, there is no requirement for a reasonableness showing or review. However, parties are not precluded from raising issues of reasonableness as part of future GRC proceedings where the recorded costs of the projects are embedded in rates.

Whether or not PG&E optimized its expenditures in a reasonable manner might be such an issue. If necessary, we can make prospective adjustments to rates in the future.

Since no party objects to the results of operations model that PG&E used to calculate the revenue requirements for this proceeding, it is reasonable for PG&E to use that model to calculate the revenue requirements for the expenditures adopted by this decision. PG&E should include the details of the revenue requirement calculations in the advice letter that implements Cornerstone related rate changes for 2011.

## 12. Reporting Requirements

PG&E proposes to provide annual reports to the Commission on Cornerstone's progress. These reports would include discussion of work completed during the prior calendar year and the cost of that work, and a forecast of work to be performed in the current calendar year. The report will also present the current trends in the escalated cost of the plant and equipment being installed. PG&E states that after experiencing the volatile escalation of costs over the last three years for transformers and other equipment that resulted from the increased cost of copper, PG&E is concerned that additional increases that are outside of its control might increase costs above the forecasts presented in this application. If that concern proves true, PG&E proposes that its fifth annual report would present PG&E's revised forecast of remaining work and the associated costs. Based on that report/forecast the Commission could determine the reasonableness of the revised Project cost estimate and determine whether to authorize PG&E to continue with the work up to the new forecast amount or discontinue work when the forecast cost presented in this Application is reached.

Conversely, if PG&E completes the work at a lower cost than authorized, the reduction in revenue requirement would be credited to customers.

### 12.1. Discussion

Because of the manner in which we have authorized funding for Cornerstone, there is a need for reporting requirements. As proposed by PG&E, it should provide annual reports that discuss work completed during the prior calendar year and the cost of that work, and a forecast of work to be performed in the current calendar year. The report should also include an accounting of the specific projects that have been funded or are being funded[21][22] and a description of how the final projects were selected including that related to alternatives, cost-effectiveness and priorities.[23] This will provide assurance to the Commission that PG&E is using its authorization as intended and in a responsible manner. Reports should be submitted annually by January 31 for theMarch 1, in each of the prior years 2010 through 2013.years 2011 through 2014, for work done in the prior year. For example, the report for work done in 2010 will be due by March 1, 2011.

With respect to PG&E's proposal for potentially increasing authorized costs, as indicated previously, rate recovery through this proceeding is capped by the adopted forecasted amounts. For the 2014 GRC, PG&E can include Cornerstone expenditures through 2013 on a recorded basis, to the extent possible. For the remainder of the projects not yet completed, forecasted costs

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[21][22] This should include the costs as forecasted in this application, the final budgeted costs after detailed analysis, and the final recorded costs.

[23] This should include analyses related to the use of outside contractors versus the use of PG&E personnel, if applicable.

can be used to determine the appropriate amount to carry forward as part of the 2014 authorization. From then on, recorded costs should be reflected in plant in service and rates in a similar manner as for other projects forecasted in GRCs.[22][24]

## 13. Rate Design

PG&E proposes to recover the cost of Cornerstone in electric distribution rates in the same manner as other distribution revenue requirements, by using the then current revenue allocation and rate design methods to change rates. There is no opposition to PG&E's rate design proposal and it will be adopted.

## 14. Comments on Proposed Decision

The proposed decision of the ALJ in this matter was mailed to the parties in accordance with Section 311 of the Pub. Util. Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on June 14, 2009 by PG&E, TURN, CCSF, ESC and CFBF, and reply comments were filed on June 21, 2010 by PG&E, TURN, and CFBF, and DRA.

To the extent that comments merely reargued the parties' positions taken in their briefs, those comments have not been given any weight. The comments which focused on factual, technical, and legal errors have been considered, and, if appropriate, changes have been made.

## 15. Assignment of Proceeding

Michael R. Peevey is the assigned Commissioner and David K. Fukutome is the assigned Administrative Law Judge in this proceeding.

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[22][24] While projects may initially be reflected in rates on a forecasted basis, at some point they become embedded in recorded plant in service and are then reflected in rates on a recorded basis.

## Findings of Fact

1. Prior to filing the Cornerstone application, Commissioners expressed concern about PG&E's level of reliability.

2. The scope and costs of PG&E's Cornerstone proposal are substantial. While the revenue requirements for the years 2010 through 2016, as calculated by PG&E, amount to $1.1 billion, cost recovery for the project will extend far beyond that timeframe and result in a revenue requirement totaling closer to $6 billion.

3. While historical SAIDI and SAIFI comparisons indicate that PG&E's reliability is lower than specified comparison groups, there are reasons for the discrepancies as detailed in D.04-10-034.

4. PG&E has not provided any compelling evidence for changing the previous Commission determination in D.04-10-034 with respect to reliability comparisons with other utilities.

5. PG&E's reliability performance over the past four years has been better than the adequate service standard established in its 1999 GRC (D.00-02-046).

6. PG&E's reliability performance has been generally consistent with the targets established by the Commission as part of PG&E's 2005-2007 Reliability Incentive Mechanism (D.04-10-034).

7. Projects necessary to maintain the current level of electric distribution reliability are addressed in PG&E's GRCs.

8. In the 2005 VOS study, it is indicated that current PG&E customers in all classes report in high numbers that the service they are receiving meets or exceeds their expectations for service quality and that most customers participating in the research are receiving acceptable service, as a function of outage frequency, for service interruptions of all types.

9. There is no new VOS evidence that supersedes, the 2005 VOS study.

10. There is no good evidence to indicate what level of overall improved reliability is necessary or appropriate.

11. Based on a reduced program, up to 68% of PG&E's quantifiable reliability improvement benefits associated with Cornerstone can be achieved for 18% of PG&E's forecasted capital expenditures.

12. With respect to distribution automation, at this point, there is insufficient justification for authorizing capital expenditures amounting to over $600 million to maximize reliability improvements or create a more robust distribution system.

13. Automating the 400 worst circuits would cost $7.2 million per minute of SAIDI saved, while the additional 817 circuits not in the group of 400 worst would cost $28.6 million per minute of SAIDI reduction.

14. Due to cost uncertainty, TURN's estimate of $75,000 for underground devices is as reasonable as is PG&E's estimate of $100,000.

15. For years not covered by union contracts, labor escalation in GRCs is generally based on forecasted factors.

16. Pole replacement and vehicle costs are legitimate distribution automation costs. Commensurate with the reduced level of distribution automation funding that is adopted, pole replacement and vehicle costs over the 2010 through 2013 period amount to $5.678 million and $0.970 million, respectively.

17. While the existing distribution system has a significant amount of existing connectivity additional interconnectivity is necessary to accommodate distribution automation.

18. When dividing interconnectivity projects into quintiles, the first two quintiles provide 43% of the total reliability benefits for all of the 194 projects for only $7.4 million or 6.5% of the $114.6 million total cost.

19. PG&E has not demonstrated the need for its proposed higher level of substation transformer emergency capacity.

20. With respect to substation transformer emergency capacity, the extended customer outage risk is low, and the bulk of FLISR benefits associated with distribution automation do not depend on the more robust system that PG&E's proposal would provide.

21. The purpose of mobile transformers is to maintain flexibility to use them in emergencies.

22. The Energy Policy Act of 2005 encouraged the use of mobile transformers.

23. The Electric Power Research Institute is conducting research into cheaper emergency mobile transformers with 20% lower cost, 25% less weight and 50% faster installation.

24. PG&E's individual bank loss deficiency studies indicate there are 191 substation emergency deficiencies, and the proposal for 95 specific projects addresses deficiencies that range from slightly more than 0.13 MW to 38.6 MW. For the 2010 through 2013 timeframe, there are 23 substations with deficiencies greater than 15 MW.

25. The reliability comparison information provided by PG&E reveals that among PG&E customers, those in low density areas, principally rural, receive less reliable service than those in high density areas.

26. PG&E's rural reliability program is cost-effective.

27. There is no opposition to PG&E's proposal to recover the cost of Cornerstone in electric distribution rates in the same manner as other distribution revenue requirements, by using the then current revenue allocation and rate design methods to change rates.

## Conclusions of Law

1. The preponderance of evidence does not support the need for a program with the scope and cost of Cornerstone as proposed by PG&E.

2. Requested cost recovery associated with Cornerstone as proposed by PG&E should be denied.

3. It is reasonable to consider specific elements of PG&E's Cornerstone proposal for cost recovery, especially those that address specific problems in a reasonable manner and those that are cost-effective.

4. PG&E should address all future electric distribution reliability matters in an integrated fashion through the GRC process.

5. As part of its next GRC (after the current ongoing 2011 GRC), PG&E should conduct a new VOS study for use, at least in part, in determining and justifying its electric distribution reliability needs.

6. It is important that the needs of customers who continually receive significantly poorer service than others be addressed.

7. Basing the adopted distribution automation budget on the automation of the 400 worst-performing circuits is reasonable. However, PG&E should prioritize its program so that it obtains the most reliability benefit for the least cost.

8. For purposes of determining a distribution automation budget, use of a 3 zone assumption and a value of $75,000 for underground devices is reasonable.

9. TURN's use of forecasted labor escalation for those years not yet covered by union contracts is reasonable.

10. For distribution automation capital expenditures, $5,678 million for pole replacement costs and $0.970 million for vehicles are reasonable.

11. The need for a broadly based feeder interconnectivity program has not been justified.

12. $36.7 million for connectivity projects to accommodate the adopted level of distribution automation project expenditures is reasonable.

13. It is reasonable for PG&E to invest approximately $7.4 million in the cheapest of the capacity connectivity projects that have reliability benefits.

14. At least in the short term, PG&E should continue to rely on mobile transformers to address substation transformer emergency capacity problems.

15. In order to help ensure the continued viability of mobile transformer use for emergency capacity purposes, it is prudent to keep the potential number of deficient transformer banks in check. For substation capacity projects proposed over the 2010 through 2013 period, it is reasonable to implement 23 projects, totaling $114.511 million in capital expenditures, for those substations that have emergency MW deficiencies in excess of 15 MW.

16. PG&E's rural reliability program is reasonable, and the proposed projects, totaling $59.924 million in capital expenditures, should be implemented over the 2010 through 2013 timeframe.

17. In identifying and prioritizing projects, PG&E should optimize the funds authorized by this decision to mitigate the identified problems of worst-performing circuits, emergency substation capacity and rural reliability, by considering the severity of the problems, options available, cost-effectiveness analysis, and non-quantifiable benefits. With exception of shifting funds to the emergency substation capacity program, PG&E should be allowed to shift funds between programs.

18. Rates should be set initially to recover forecasted costs. PG&E should establish a new balancing account to track recorded costs.

19. PG&E should provide annual reports that discuss work completed during the prior calendar year and the cost of that work, and a forecast of work to be performed in the current calendar year. Reports should be submitted annually by ~~January 31 for~~March 1 in each of the ~~prior~~ years 2010 through ~~2013.~~2014, for work done in the prior year.

20. PG&E's revenue allocation and rate design proposal is reasonable.

## O R D E R

**IT IS ORDERED** that:

1. Pacific Gas and Electric Company shall implement the authorized version of the Cornerstone Improvement Project, for the time period 2010 through 2013, as specified in Attachment A.

2. Pacific Gas and Electric Company shall file an advice letter by October 1, 2010 to implement rates related to the authorized Cornerstone Improvement Project expenditures for 2011.

3. Pacific Gas and Electric Company shall use its results of operations model used in this proceeding and incorporate the costs adopted in this decision to determine the appropriate revenue requirements for the years 2011 through 2013. Detailed results shall be included in the advice letter that implements rates for 2011.

4. Pacific Gas and Electric Company shall recover the authorized costs of the Cornerstone Improvement Project in electric distribution rates in the same manner as other distribution revenue requirements, by using the then current revenue allocation and rate design methods to change rates.

5. Pacific Gas and Electric Company shall establish the Cornerstone Improvement Project Balancing Account to track the revenue requirements

associated with actual costs. At the end of 2013, any balance associated with authorized revenue requirement in excess of recorded revenue requirement shall be refunded or credited to ratepayers.

6. For the years 2012 and 2013, Pacific Gas and Electric Company shall recover the forecast revenue requirements and the year-end balance recorded in the Cornerstone Improvement Project Balancing Account in electric rates in the Annual Electric True-up advice letters for those years.

7. As part of its scheduled test year 2014 general rate case filing, Pacific Gas and Electric Company shall include a new value of service study for electric reliability.

8. Pacific Gas and Electric Company shall provide annual reports that discuss work completed during the prior calendar year and the cost of that work, and a forecast of work to be performed in the current calendar year. The reports shall also include an accounting of the specific projects that have been funded or are being funded and a description of how the final projects were selected including alternatives, cost-effectiveness and priorities. Reports shall be submitted annually by ~~January 31 for~~March 1 in each of the ~~prior~~ years 2010 through ~~2013.~~2013, for work done in the prior year.

9. Application 08-05-023 is closed.

This order is effective today.

Dated _____, at San Francisco, California.

## Attachment A

Authorized Expenditures for the Years 2010 through 2013
(Nominal dollars in thousands)

Distribution Automation

Install FLISR systems and perform associated work on the 400 worst performing circuits, with appropriate prioritization of projects based on the severity of the problem and cost effectiveness analyses.

| | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| Capital Expenditures | $15,547 | $32,066 | $43,804 | $44,924 | $136,341 |
| Expenses | - | 754 | 2,336 | 4,563 | 7,653 |

Distribution Capacity -
Feeder Interconnectivity

Upgrade feeders in urban/suburban areas to accommodate authorized distribution automation and to realize reliability benefits of the most cost effective projects, including the projects specified by TURN that total $7.4 million.

| | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| Capital Expenditures | $ 4,992 | $10,779 | $14,706 | $ 15,061 | $ 45,538 |

Distribution Capacity -
Substation Transformer Emergency Capacity

Install transformers on substation banks with emergency capacity deficiencies greater than ~~20~~15 MW, with appropriate prioritization of projects based on the severity of the problem and cost effectiveness analyses.

| | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| Capital Expenditures | $ 310 | $38,900 | $39,972 | $ 35,330 | $ 114,512 |
| Expenses | - | - | 487 | 1,000 | 1,487 |

Distribution Capacity -
Project Management

| | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| Capital Expenditures | $ 174 | $ 606 | $ 510 | $ 473 | $ 1,763 |

Rural Reliability

Install reclosers and fuses on rural distribution circuits, with appropriate prioritization of projects based on the severity of the problem and cost effectiveness analyses.

| | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| Capital Expenditures | $ 4,229 | $15,968 | $19,313 | 19,784 | $ 59,294 |
| Expenses | - | 5 | 25 | 49 | 79 |

**(End of Attachment A)**

ATTACHMMENT B
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**(END OF ATTACHMENT B)**

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