June, 2014

WORKING GROUP 10A
CPE Powering – Consumer Outreach

Final Report – CPE Powering

Table of Contents

1 Results in Brief

1.1 Executive Summary

Working Group 10 of the Communications, Security, Reliability, and Interoperability Council (CSRIC) is focused on addressing Customer Premise Equipment (CPE) Powering.

"With the rapid proliferation of VoIP technologies as substitutes for legacy telecommunications services, end-users are now utilizing a service that lacks the lifeline they were once accustomed to. Instead of being powered from the resilient back-up power infrastructure in the serving central office, the user's home device is powered by a local battery when line power is lost, as often happens during emergencies. Different communications providers have different policies as it relates to powering these devices. This Working Group will recommend best practices for providing back-up power to VoIP customer premises equipment, including best practices for consumer notification."[1]

CSRIC Working Group 10 structured itself into two vertical areas to address CPE best practices and consumer notification.

2 Introduction

The CSRIC was established as a Federal Advisory Committee designed to provide recommendations to the Federal Communications Commission (FCC) regarding best practices and actions the Commission can take to ensure optimal security, reliability, and interoperability of communications systems, including telecommunications, media and public safety communications systems. CSRIC created ten working groups, each with its own area of responsibility. Working Group 10 was charged with examining CPE powering best practices and consumer notification. Working Group 10A was charged with taking a fresh look at CPE powering consumer notification.

Consumers are increasingly seeking out and converting to VoIP technologies. In order to prepare the consumer for the VoIP conversion, telecommunication service providers, industry organizations, and the FCC should provide guidance to the consumer on how to prepare for a loss in commercial power.

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[1] fcc.gov, CSRIC IV Working Group Descriptions and Leadership, http://transition.fcc.gov/bureaus/pshs/advisory/csric4/CSRIC_IV_Working_Group_Descriptions _011014.pdf (accessed February 18, 2014).

2.1   CSRIC Structure

Communications Security, Reliability, and Interoperability Council (CSRIC) IV									
CSRIC Steering Committee									
Chair or Co-Chairs: Working Group 1	Chair or Co-Chairs: Working Group 2	Chair or Co-Chairs: Working Group 3	Chair or Co-Chairs: Working Group 4	Chair or Co-Chairs: Working Group 5	Chair or Co-Chairs: Working Group 6	Chair or Co-Chairs: Working Group 7	Chair or Co-Chairs: Working Group 8	Chair or Co-Chairs: Working Group 9	Chair or Co-Chairs: Working Group 10
Working Group 1: Next Generation 911	Working Group 2: Wireless Emergency Alerts	Working Group 3: EAS	Working Group 4: Cybersecurity Best Practices Working	Working Group 5: Server-Based DDoS Attacks	Working Group 6: Long-Term Core Internet Protocol Improvements	Working Group 7: Legacy Best Practice Updates	Working Group 8: Submarine Cable Landing Sites	Working Group 9: Infrastructure Sharing During Emergencies	Working Group 10: CPE Powering

Table 1 - Working Group Structure

2.2   Working Group 10A Team Members

Working Group 10A consists of the members listed below.

Name	Company
Marte Kinder Subcommittee Co-Chair	Time Warner Cable
Lois Burns Subcommittee Co-Chair	State of Pennsylvania
Brian Allen	Time Warner Cable
Tim Walden	CenturyLink
John Healy	FCC Representative
David Russell	Calix
Eric Dreas	Comcast
Haifeng Bi	AT&T
Mark Adams	Cox
Mike Nawrocki	Verizon
Thomas Schwengler	CenturyLink
Barry Umansky	Ball State University

Table 2 - List of Working Group Members

3   Objective, Scope, and Methodology

3.1   Objective

Working Group 10A's objective is to create a comprehensive set of consumer notification best practices.

3.2　Scope

3.2.1　Problem Statement

With the rapid proliferation of VoIP technologies as substitutes for legacy telecommunications services, consumers must be made aware of how their CPE functions during a commercial power outage and what they, as the consumer, can do to extend CPE power during a commercial power outage.

3.2.2　Working Group Description

This Working Group will create a list of consumer notification best practices by:
- Analyzing consumer notification best practices
- Recommending modifications and deletions to those existing best practices
- Identifying new consumer notification best practices

3.2.3　Deliverables

Creation of Consumer Recommendations and Consumer Notification Best Practices.

3.3　Methodology

3.3.1　Methodology Overview

Working Group 10A met weekly or bi-weekly, assigned sub-topics to subject matter experts, researched best practices across a number of resources, evaluated the gaps, and developed a list of Recommendations.

3.3.2　Sub-Team Organization

Working Group 10A performed an analysis of key areas across the communications industry, the FCC, and state agencies.

3.3.3　Sub-Team Approach

Working Group 10A began meeting in December 2013 to discuss the scope of the sub-group and to determine the subjects to be addressed. Working Group 10A utilized conference calls to examine existing Consumer Recommendations and Best Practices, to recommend changes to existing Recommendations and Best Practices, and to add new Recommendations and Best Practices.

The analysis included:

- Elimination of obsolete or irrelevant Recommendations and Best Practices
- Creation of references to materials and websites
- Development of new Recommendations and Best Practices

New Recommendations and Best Practices were vetted among Working Group 10 at meetings and through email. When the sub-group had completed its analysis, the completed document was forwarded to the Working Group Committee Leads. The Committee Leads assessed the document and made recommendations for moving or removing items. After an agreement via conference call and email, the final CSRIC Consumer Notification Recommendations and Best Practices document was completed. It is attached as an appendix to this document.

4 Background

Prior to the rapid proliferation of VoIP technologies as substitutes for legacy telecommunications services, consumers were relying on cordless handsets. Consumers should have been made aware of the limitations of cordless handsets. Cordless handsets normally do not have back-up battery units and will not work during a commercial power outage. Consumers should know the difference between a wired handset and a cordless handset.

Consumers are increasingly selecting VoIP technology as their primary telecommunications technology. VoIP technology is not powered by the back-up power infrastructure that served the legacy central office. The consumer's home device is powered by a local battery when commercial power is lost. Different communications providers have different policies as it relates to powering these devices.

It is important for the consumer to be informed of and understand the technology they are using, the design of the battery back-up, and ways to conserve power during a commercial power outage. It is also important for consumers to understand the capability of their communications device to make a 911 call during a prolonged outage.

5 Analysis, Findings and Recommendations

5.1 Analysis and Findings

The working group agreed to explore consumer notification issues by reviewing public utility commission complaints and responses, public utility press releases, and outage response and restoration practices. The group members own experiences provided a starting point from which the group further identified consumer notification efforts.

5.2   Recommendations

CSRIC Working Group 10A recommends the attached set of Consumer and Service Provider Recommendations to the FCC for consideration of adopting the best practices for general use by consumers, industry, the FCC, and state and local government.

6   Conclusions

The CSRIC Working Group 10A spent more than six months researching, analyzing, and evaluating Consumer Recommendations and Notification Best Practices. During this time members participated in dozens of conference calls, identified gaps, and researched new Recommendations and Best Practices, plus dedicated countless hours editing and revising the final report.

In conclusion, members feel this Final Report is a fair and accurate representation of their collective view-points and perspectives and hopes this will help to improve Consumer Notification through these Best Practices.

7   Appendix

The Communications Security, Reliability and Interoperability Council – Consumer Recommendations

The Communications Security, Reliability and Interoperability Council – Consumer Checklist

The Communications Security, Reliability and Interoperability Council – VoIP Service Provider Notification Recommendations

The Communications Security, Reliability and Interoperability Council – Consumer Recommendations

CSRIC Consumer Notification Working Group for CY 2014

Table of Contents

1. Introduction

All consumers face commercial power interruptions. These interruptions may be from natural or man-made disasters and could last minutes, hours, days, or weeks depending on the severity of the interruption. Consumers that rely on VoIP technology must understand the product they have purchased, the range of battery back-up options commercially available, and the need to conserve back-up battery power. Consumers should also understand that no network has 100% survivability.

One challenge all consumers face is how to properly prepare for the loss of commercial power. A goal of this document is to discuss strategies to aid in the creation of a methodology for dealing with commercial power interruptions so that the design and use of back-up battery power is understood. It would be impossible to foresee every possibility and therefore develop a formula that covers all events. The discussion, then, should be around the general strategy for managing back-up battery power during commercial power outages. Consumers should gain an understanding of commercial power outage history in their area. This general approach for a response to a commercial power outage can be best seen in the following:

Step 1: Develop a Communications Plan
Step 2: Acting During Commercial Power Outage
Step 3: Post-Outage Analysis

2. Step 1: Develop a Communications Plan

2.1.   Identification and Preparation

Before a consumer can plan for a commercial power outage, they have to understand the Customer Premise Equipment (CPE) they are using. In order to prepare for a commercial outage, it is incumbent upon the consumer to know if their equipment has battery back-up power, if they need to purchase additional battery back-up, how to purchase battery back-up, and the lifespan of any purchased battery back-up power. Consumers need to have a plan to deal with the inevitable possibility of a commercial power outage.

Preparation is one of the most important parts for consumers. Proper planning by the consumer will provide the framework on which they can rely during a commercial power outage. Consumers can prepare by obtaining key information concerning their CPE through specifically designated storm preparation information or routine CPE information listed on their provider's website.

Consumers should understand that all rechargeable back-up batteries have finite lifetimes. Purchasing and charging a back-up battery is not a one-time action. The back-up battery has to be continually monitored for battery degradation. Consumers should create a back-up battery maintenance and testing schedule in much the same way they do with their home smoke

detectors.

Consumers should create a disaster response kit that they can use for commercial power outages. Consumers should include plans for back-up battery power in the same way they have a plan for food, water, replacement power (such as generators, charged cellphones), and fuel during a disaster.

Consumers should understand the difference between talk time and standby time as it relates to the depletion of back-up battery. Talk time (using the phone) will deplete the battery faster than when the phone is in standby mode (not being used). In order to prolong the back-up battery life during a commercial power outage, consumers should limit the amount of talk time.

2.2.   Identification checklist for consumer:

1. Identify VoIP service provider.
2. Identify internet service provider.
3. Determine number and types of CPE in use for VoIP and internet.
   a. Notes: The VoIP and internet service provider may or may not be the same company.
4. Determine if back-up battery power is included with VoIP and internet CPE.
5. If back-up battery power is included, determine length of time of battery back-up power, ways to conserve power, and if the back-up battery unit shuts down automatically before the battery is fully depleted.
   a. Examples:
      i. Some units may not have a back-up battery unit and will not work without electricity.
      ii. Some VoIP back-up battery units will shut down an hour before the battery is fully depleted. At that point, the consumer activates the reserve power feature.
   b. These are generic examples. Consumers should fully understand and document the details for their specific equipment including how to determine battery status, battery testing, and battery lifespan. This information can be provided by their service providers at installation or obtained by consumers on a provider's website.
6. Consumers should have a full understanding of the back-up battery, emergency usage, and instructions for activating emergency usage, if available. The consumer should be provided this information at the time of installation and retain it in their personal records.
7. Consumers should print and keep a copy of back-up battery details, emergency use details, and instructions in their disaster kit.
8. If back-up battery power is not included, consumers should determine if they want to purchase back-up battery power, what type to purchase, how much to purchase, and ways to conserve power.
9. Determine how often the back-up battery(s) needs to be charged and how long it takes to fully charge the back-up battery.
10. Determine how often back-up battery needs to be tested.
11. Determine how often back-up battery needs to be replaced and correct local, state, and federal regulations for battery disposal procedures.

12. Conduct trial run of back-up battery test, connection, and use.

2.3.   Back-Up Battery Plan Template
1. Name of Electric company and company contact information (phone number, website address, social media addresses).
2. Name of VoIP service provider and provider contact information (phone number, website address, social media addresses).
    2.1. Type of VoIP CPE including any provider information that addresses 911 connectivity.
3. Name of internet service provider and provider contact information (phone number, website address, social media addresses).
    3.1. Type of in internet CPE
    3.2. Note: If the internet service provider is different than the VoIP service provider, consumers need to understand the CPE of both providers and plan for additional battery back-up for the internet modem.
4. Number of back-up battery hours installed, including any reserve power feature.
5. Number of additional back-up battery hours purchased.
6. If more than one back-up battery was purchased, date of last back-up battery charge.
7. Date of last back-up battery test.
8. Replacement date for back-up battery end of life.

3. Step 2: Acting During Commercial Power Outage

During a commercial power outage, consumers should determine when to switch to back-up battery power. Consumers need to be aware that back-up battery power is a finite resource and should be managed in the same way that food, water, and fuel are managed during disasters.

Consumers should understand that during a disaster, the VoIP network may be out of service, the internet network may be out of service, and/or commercial power may be out of service. If the VoIP or internet network is out of service, the consumer should save their back-up battery power until both the VoIP and internet networks are back in service. Using back-up battery to power CPE while the VoIP network or the internet network is out of service will only run down the back-up battery.

4. Step 3: Post-outage analysis
After a commercial power outage, consumers should analyze the effectiveness of the back-up battery methods they chose. Consumers should determine what, if any, additional back-up battery resources should be added. Consumers should understand that the life expectancy of the back-up battery decreases the more often the back-up battery is used.

5. Appendix
Additional information on batteries and battery standards can be found through the American

National Standards Institute (ANSI) at www.ansi.org.

The Communications Security, Reliability and Interoperability Council – Consumer Checklist

CSRIC Consumer Notification Working Group for CY 2014

Table of Contents

1. Emergency Preparation Checklist – VoIP Consumer

All consumers face commercial power interruptions. These interruptions may be from natural or man-made disasters and could last minutes, hours, days, or weeks depending on the severity of the interruption. Consumers that rely on VoIP technology must understand the product they have purchased, the range of battery back-up options commercially available, the need to conserve back-up battery power, and how to check the back-up battery user guide for a status indicator.

Before a consumer can plan for a commercial power outage, they have to understand the VoIP Consumer Premise Equipment (CPE) they are using. In order to prepare for a commercial outage, it is incumbent upon the consumer to know if their equipment has battery back-up power, if they need to purchase additional battery back-up, how to purchase battery back-up, and the lifespan of any purchased battery back-up power. Consumers need to have a plan to deal with the inevitable possibility of a commercial power outage. Consumers should gain an understanding of commercial power outage history in their area.

Consumers should understand that their VoIP service provider may be different than their internet service provider. If the two providers are different, the consumer will have to understand the internet CPE they are using. In order to prepare for a commercial outage, it is incumbent upon the consumer to know if their equipment has battery back-up power, if they need to purchase additional battery back-up, how to purchase battery back-up, and the lifespan of any purchased battery back-up power.

Preparation is one of the most important steps for consumers. Proper planning by the consumer will provide the framework on which they can rely during a commercial power outage. Consumers can prepare by obtaining key information concerning their CPE through specifically designated storm preparation information or routine CPE information listed on their provider's website.

Consumers should understand that all rechargeable back-up batteries have finite lifetimes. Purchasing and charging a back-up battery is not a one-time action. The battery has to be continually monitored for battery degradation. Consumers should create a back-up battery maintenance and testing schedule in much the same way they do with their home smoke detectors.

Consumers should create a disaster response kit that they can use for commercial power outages. Consumers should include plans for back-up battery power in the same way they have a plan for food, water, replacement power (such as generators, charged cellphones), and fuel during a disaster.

2. VoIP Consumer Equipment Checklist

1. **Preparation**

Planning Checklist Items	Yes	No	Not Required	Comments
What is the name of your VoIP service provider? (Include company's name, telephone number, website, social media addresses)	☐	☐	☐	
Do you understand that during a commercial power outage, your VoIP service may/will not work and why?	☐	☐	☐	
Do you understand that you can call your VoIP service provider or access your VoIP service provider's website for details on what back-up battery is and what it means to you?	☐	☐	☐	
Do you understand that your internet service provider may be different than your VoIP service provider?	☐	☐	☐	
If different, what is the name of your internet service provider? (Include company's name, telephone number, website, social media addresses)	☐	☐	☐	
Do you understand that during a commercial power outage, your internet service may/will not work and why?	☐	☐	☐	
Do you understand that you can call your internet service provider or access your internet service provider's website for details on what back-up battery is and what it means to you?	☐	☐	☐	
What number and types of Consumer Premise Equipment (CPE) do you have?	☐	☐	☐	

Is back-up battery power included with your CPE(s)?	☐	☐	☐	Yes, go to section 2. No, go to section 3.

2. Back-up Battery Power is Included with CPE				
Planning Checklist Items	**Yes**	**No**	**Not Required**	**Comments**
How many hours of back-up battery do you have?	☐	☐	☐	
What are ways you can conserve power during a power outage?	☐	☐	☐	
Do you understand the difference between standby time and talk time? Talk time will deplete the battery faster than standby time.	☐	☐	☐	
Does the back-up battery have an automatic shut off to reserve power for emergency use? If yes, do you know how to activate the reserve power? If no, do you understand that once the battery power has run out, you will not be able to call emergency services?	☐	☐	☐	
How often does your back-up battery need to be charged?	☐	☐	☐	
How long does it take to fully charge the back-up battery?	☐	☐	☐	
How often does your back-up battery need to be tested?	☐	☐	☐	
How often does your back-up battery need to be replaced?	☐	☐	☐	
Do you know how to correctly dispose of an old battery following correct local, state, and federal regulations?	☐	☐	☐	

	Yes	No	Not Required	Comments
Have you conducted a trial run to activate your back-up battery to ensure you understand the process?	☐	☐	☐	

3. Back-up Battery Power is Not Included with CPE				
Planning Checklist Items	**Yes**	**No**	**Not Required**	**Comments**
Do you want to purchase a back-up battery unit?	☐	☐	☐	
If yes, contact your VoIP service provider and/or your internet service provider for recommended vendors and units.	☐	☐	☐	
If no, do you understand that during a power outage, your VoIP service will not work and you will not be able to make calls to emergency services?	☐	☐	☐	
If a back-up battery unit was purchased, return to section 2.	☐	☐	☐	

The Communications Security, Reliability and Interoperability Council – VoIP Service Provider Notification Recommendations

CSRIC Consumer Notification Working Group for CY 2014

Table of Contents

1. VoIP Service Provider Notification Recommendations

The consumers of all VoIP service providers will face commercial power interruptions. These interruptions may be from natural or man-made disasters and could last minutes, hours, days, or weeks depending on the severity of the interruption.

VoIP service providers, as part of consumer education efforts, should provide a full explanation of emergency use capabilities, battery back-up units, and how to access detailed information about battery back-up units through its Company website, in its installation/confirmation of service materials, and/or as part of a technician's explanation of the service at the customer's premise. VoIP service providers should ensure information is available to all consumers including persons with disabilities so that consumers are able to fully understand their CPE in order to maintain critical services.

If VoIP service providers are proactively notifying consumers prior to an anticipated extreme weather event (outside of normal emergency notification messages), the VoIP service provider should include detailed information about emergency use capabilities, battery back-up units, or how to access detailed information about battery back-up units. This consumer outreach can be achieved through specifically designated storm preparation information, through routinely listed information on the provider's website, or other means to ensure reaching all consumers.

As VoIP service providers introduce new technologies and services, they should provide a full explanation of emergency use capabilities, battery back-up units, and how to access detailed information about battery back-up units through its Company website, in its installation/confirmation of service materials, and/or as part of a technicians' explanation of the service at the customer's premise.

VoIP service providers should review and update their communications plans annually.

2. Appendix: Best Practices

Area	Category	Best Practice
Service Provider	Consumer Outreach	VoIP service providers, as part of consumer education efforts, should provide a full explanation of emergency use capabilities, battery back-up units, and how to access detailed information about battery back-up units through its Company website, in its installation/confirmation of service materials, and/or as part of a technician's explanation of the service at the customer's premise.
Service Provider	Consumer Outreach	VoIP service providers should ensure back-up battery information is available to all consumers including persons with disabilities so that consumers are able to fully understand their Customer Premise Equipment (CPE) in order to maintain critical services.
Service Provider	Consumer Outreach	As VoIP service providers introduce new technologies and services, they should provide a full explanation of emergency use capabilities, battery back-up units, and how to access detailed information about battery back-up units through its Company website, in its installation/confirmation of service materials, and/or as part of a technicians' explanation of the service at the customer's premise.
Service Provider	Consumer Outreach	VoIP service providers should review and update their back-up battery communications plans annually.