OfReg Discussion Paper 2018-001 ICT

Proposed Emergency Notification System (ENS)

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Contents

1. Introduction

The Utility Regulation and Competition Office (the **'*Office*'** or '***OfReg***') is the independent regulator for the electricity, information and communications technology ('**ICT**'), water, wastewater and fuels sectors in the Cayman Islands. The Office also regulates the use of electromagnetic spectrum and manages the .ky Internet domain.

The **Department of Hazard Management Cayman Islands ('*HMCI*')** oversees detailed hazard management plans[1] dealing with natural disasters such as hurricanes, tsunamis, earthquakes and man-made disasters such as large-scale accidents and fires.

Though not yet deployed, an **emergency notification system ('*ENS*')** utilising best practices from other jurisdictions is feasible for the Cayman Islands.

The ENS would utilise inexpensive, available technologies to provide early warnings and alerts prior to disasters (when possible) as well as real time emergency instructions during disasters, thus aiding HMCI and first responders in more efficiently managing public health and safety.

The need for an innovative ENS has been demonstrated in the last twelve (12) months, with the fuel depot fire at Jackson Point Terminal and the recent Tsunami warning.

The purpose of this discussion paper is to seek the views of operators, the general public, and other interested parties, regarding the proposed Emergency Notification System (ENS).

[1] The volume of plans is updated annually (June) and is available for review at http://caymanprepared.ky.

2. Executive Summary

OfReg and HMCI can jointly design and deploy an innovative ENS that immediately improves public safety throughout the Cayman Islands.

Such a system would align with current legislation, OfReg's statutory functions and short-term objectives and the Cayman Islands' Government's key priorities for 2018-2021.

The proposed ENS would utilise twelve (12) inexpensive, available technologies as communication channels for alerts and information:

1) Short Message Service (SMS) Broadcast
2) FM Radio - Interrupt – EAS standard
3) FM Radio - Weather Alert system
4) FM Radio – 107.9 text to voice messaging
5) Cable Television – Interrupt - EAS standard
6) Siren - for localised threats
7) Robot Dialer – for localised threats
8) Interactive Voice Response (IVR) - special telephone number to call with pre-recorded message
9) Social Media Broadcasts (HMCI & OfReg, etc.)
10) Electronic Billboards - located at key traffic intersections
11) Web Content Ticker - central feed source at HMCI, HTML code embedded in websites
12) Mobile Phone App

OfReg recommends implementing the ENS in 2018 where OfReg, together with it's Licensees, designs and deploys channels 1 through 6 and HMCI has the responsibility of implementing channels 7 through 12.

3. Background

Following last year's fuel depot fire at Jackson Point Terminal, it was apparent that more innovative communication channels for disseminating up-to-date information were required.

OfReg initiated discussions with its Licensees about available and cost-effective technologies for an ENS. Based on these discussions, OfReg began making recommendations to HMCI.

On 21 March 2017, along with other Caribbean jurisdictions, OfReg and HMCI jointly participated in the **CARIBE WAVE 17** tsunami response exercise, testing an SMS broadcast[2].

From that point, progress towards the proposed ENS was slow while specific recommendations were explored in more detail. This exploration resulted in the equipment for the FM radio interrupt to be purchased. Installation of this equipment is expected to take place shortly. Nonetheless, the tsunami threat at the start of this year has again made the ENS the focus of public attention.

[2] Customers of two Telecom Licensees should have received a text message at approximately 9:10 a.m. that read: "*MESSAGE ALERT: This is a test of the Emergency Notification System for the 2017 Tsunami Exercise. THIS IS ONLY A TEST*." Some customers received the message close to 9:10am, some received the message after significant delays, and the rest did not receive it at all.

4. Alignment

The proposed ENS aligns with legislation, Government priorities and OfReg's statutory functions and short-term objectives.

4.1 Legislation

Section 7 of the **Disaster Preparedness and Hazard Management Law, 2016 (**the '***DPHM Law***'**)** calls for the establishment of a National Emergency Notification System to be operated under the supervision of the Director of the Department of Hazard Management Cayman Islands (HMCI).

Further, **section 8(1)** of the DPHM Law states:

> *"The National Emergency Notification System shall enable the Government to broadcast emergency announcements to the public on such frequency or in such manner as is specified in a memorandum of understanding between the Government and a person who is licensed to operate a broadcasting station under the Information and Communications Technology Authority Law (2011 Revision)*[3]*."*

4.2 Government Priorities

The following eight (8) broad outcomes on p. 47 of the **Cayman Islands Government's 2018 Strategic Policy Statement** are key Government priorities for 2018-2021:

1) The best education opportunities for children;
2) Achieving full employment for Caymanians;
3) A strong economy to help families and businesses;
4) Access to quality and affordable healthcare;
5) Reducing crime and the fear of crime;
6) Stronger communities and support for the most vulnerable;
7) Ensuring Caymanians benefit from a healthy environment; and
8) Stable, effective and accountable Government.

Priorities 6 through 8 align with an improved, more innovative ENS.

[3] The Information and Communications Technology Authority Law (2011 Revision) (the "***ICTA Law***") was replaced by the ICTA Law (2016 Revision). As a result of the ICTA being amalgamated into OfReg, which now oversees ICT sector regulation, the ICTA Law (2016 Revision) has been repealed and replaced by the Information and Communication Technology Law (2017 Revision*) (*the "***ICT Law***"*).* See **section 9(2)** of the ICT Law.

4.3 Statutory Functions

OfReg's principal statutory obligations are defined in **section 6(1)** of the **Utility Regulation and Competition Law, 2016 (**the **'*URC Law*')**:

> *"In the discharging of its functions, the Office has a duty to promote objectives set out in Government policy, to promote effective and fair competition, to protect the interests of consumers, and to promote innovation and facilitate economic and national development".*

4.4 Short-term Objectives

4.4.1 Strategic Focus

In its **2018-2022 Strategic Plan**[4], OfReg developed the following **strategic focus** that accounts for statutory duties and functions, but also aligns with Government policy and key priorities for 2018-2021:

> *"To identify opportunities, develop and implement strategies designed to enable the people of the Cayman Islands to have access to and utilise new technologies to improve their lives through increased economic activity; while ensuring that traditional utility services are delivered efficiently and at least economic cost."*

4.4.2 2018 Annual Plan

In **subparagraph 31(q)** of OfReg's **2018 Annual Plan**[5], implementing the proposed ENS is an information and communications technology (ICT) sector priority for OfReg in 2018:

> *"Commence implementation of an ENS physical and logical security, rollout, local operator resiliency and capacity and control (2018)."*

[4] See OfReg's 2018-2022 Strategic Plan: http://www.ofreg.ky/upimages/commonfiles/1510948574OF2017-3-ResponsestoCommentsStrategicPlan2018-2022andAnnualPlan2018.pdf

[5] See OfReg's 2018 Annual Plan: http://www.ofreg.ky/upimages/commonfiles/1510948574OF2017-3-ResponsestoCommentsStrategicPlan2018-2022andAnnualPlan2018.pdf

5. Additional Considerations

1) The HCMI and OfReg, after discussions and conducting a review of the process in relation to the public's notification of recent emergency events (e.g. the fuel depot fire at Jackson Point Terminal and the recent Tsunami threat), have concluded that there is need for a more comprehensive ENS.

2) Will the proposed ENS increase penetration to the vulnerable[6] throughout the Cayman Islands? OfReg holds the position that the proposed ENS will improve our ability to communicate with citizens with special needs. Nonetheless, OfReg notes that there may be inherent limitations with each of the channels and accept that special arrangements may need to be considered to address specific communication challenges.

[6] The Cayman Islands Disability Policy (2014-2033) was approved by Cabinet in Q4 2014, and the Cayman Islands Older Person Policy (2016-2035) was approved by Cabinet in Q4 2016. OfReg is statutorily obligated to promote Government policy.

6. ENS Proposal

6.1 Channels for Informing the Public

Table 1 shows the twelve (12) low cost technologies proposed to act as communication channels to broadcast emergency instructions and alerts. Combined, the channels create an innovative ENS with layers of redundancy meant to increase penetration.

Highlighted in grey are the communication channels OfReg can assist HMCI in designing and deploying.

Table 1: Proposed ENS Communication Channels

Communication Channel	Description	Pros / Cons
1. Short Message Service (SMS) broadcast	Send Emergency Message as a Text Message to all known local mobile phone numbers in both mobile operators Customer Databases	✓ Tested w/ CARIBE WAVE 17 ✓ Supported by 99% of handsets ✓ Easy to implement (now) ✓ High penetration on all islands ✓ Low cost ▯ Possible message delays when used for a large number of recipients
2. FM Radio – Interrupt – Emergency Alert System (EAS) standard	Deploy EAS Receiver at Radio Cayman. The EAS Receiver will receive the Emergency Notification via a Network link from the National Emergency Operations Centre which will interrupt the current programming and broadcast the Emergency Notification. Deploy EAS Receivers with all other FM Broadcasters. The EAS Receivers will monitor Radio Cayman transmissions, and will interrupt the current programming and send out the Emergency Notification being broadcast on Radio Cayman (or the EAS Receivers will receive the Emergency Notification via a Network link from the National Emergency Operations Centre which will interrupt the current programming and broadcast the Emergency Notification)	✓ Easy to implement ✓ Only minor modifications to FM broadcasters ✓ Potential for high penetration (home, office, roadways) ✓ HMCI has procured the equipment
3. FM Radio – Weather Alert System	A local "All Hazards" radio network that is a single source for comprehensive weather and emergency information, broadcasting on all 3 islands. Uses a special radio receiver or scanner capable of picking up the signal in the VHF public service band at these seven	✓ Available on all islands ▯ Design and procurement required

Communication Channel	Description	Pros / Cons
	frequencies (MHz): 162.4, 162.425, 162.450, 162.475, 162.5, 162.525, 162.550	
4. FM Radio – 107.9 Text to Voice Messaging	Currently the National Weather Service uses Log me in to access the "Text to Speech" application (running on equipment at Northward Prison Tower). A file is uploaded which is converted to "speech" and broadcast on FM 107.9. If access is given to the National Emergency Operations Centre which, simply upload a file with the Emergency Notification for broadcast	✓ Utilise existing equipment ✓ Easy to implement - train NEOC staff + agreement for usage ✓ High potential for penetration (with community education) ✓ Low cost
5. Cable Television – Interrupt – EAS standard	Deploy EAS Receiver at Broadcast TV and Cable TV head-ends. The EAS Receiver will receive the Emergency Notification via a Network link from the National Emergency Operations Centre which will interrupt the current programming and broadcast the Emergency Notification. There are a few options to how the Emergency Notification can be delivered: 1) Text Crawler added to current programming 2) Text Crawler added to current programming advising to switch to a dedicated Emergency Notification Channel, which will contain Emergency Notification content and programming	✓ Easy to implement (Agree to a framework with TV operators) ✓ Minor modifications to current TV broadcast and cable networks ✓ Potential for high penetration on all islands ✗ Design and procurement required
6. Siren for localised threats	Localised emergency notification focused on specific threat areas (e.g., warning sirens) on all 3 islands. Implement in phases: • SOL Terminal & RUBIS Terminal at JPT (Phase 1) • Home Gas terminal & Clean Gas terminal (Phase 2) • Pure Air plant and CUC and CBP&L generating plants (Phase 3)	✓ High penetration ✓ Low cost ✓ Quick implementation
7. Robot Dialler for localised threats	Can deliver an Emergency Notification to a focused group. No	✓ High penetration

Communication Channel	Description	Pros / Cons
	additional requirements for community members other than having a working phone. Easy to achieve high penetration in localised threat communities (calls can be ignored)	✗ Requires working phone and caller to pick up
8. Interactive Voice Response (IVR) – special phone number to call with pre-recorded message	IVR Platform would have Emergency Notification messages uploaded by National Emergency Operations Centre staff. Community members would call the access number and receive Emergency Notifications and updates. Emergency notifications would be delivered via phone calls	✓ High penetration on all 3 islands with community engagement ✓ Low cost
9. Social Media Broadcasts	Use of social media platforms to disseminate Emergency Notifications. Engage Government departments and authorities and popular Local media entities (e.g., Cayman 27, Radio Cayman, Rooster 101, etc.) to broadcast Emergency Notifications via their Social Media channels	✓ High penetration across all 3 islands ✓ Low cost ✓ Reduce fake news for local media outlets
10. Electronic Billboards	Large Electronic Billboards at key traffic intersections. Billboards paid for in conjunction with sponsors who use the billboards for their own advertising (when not in-use for Emergency Messages)	✓ High penetration at peak traffic times ✓ Easy to control
11. Web Content Ticker – central feed source at HMCI (HTML code embedded in websites)	Work with website operators to add in the ticker during times of Emergency Notification delivery	✓ High penetration ✓ Rapid delivery ✓ Low cost
12. Mobile Phone App	Engage professional services company to design and launch apps for iOS & Android. Conduct a publicity campaign. Work with Mobile operators to include apps with all locally sold phones (or possible force install of app on all phones connected to local Mobile networks)	✓ High penetration on mobile devices ✓ Content delivery for localised threats

6.2 Configuration

Figure 1 is the proposed ENS configuration. It shows how when activated, the ENS will disseminate information to the public. The blue dashed line in column B of the graphic also highlights the communication channels OfReg can assist HMCI in designing and deploying.

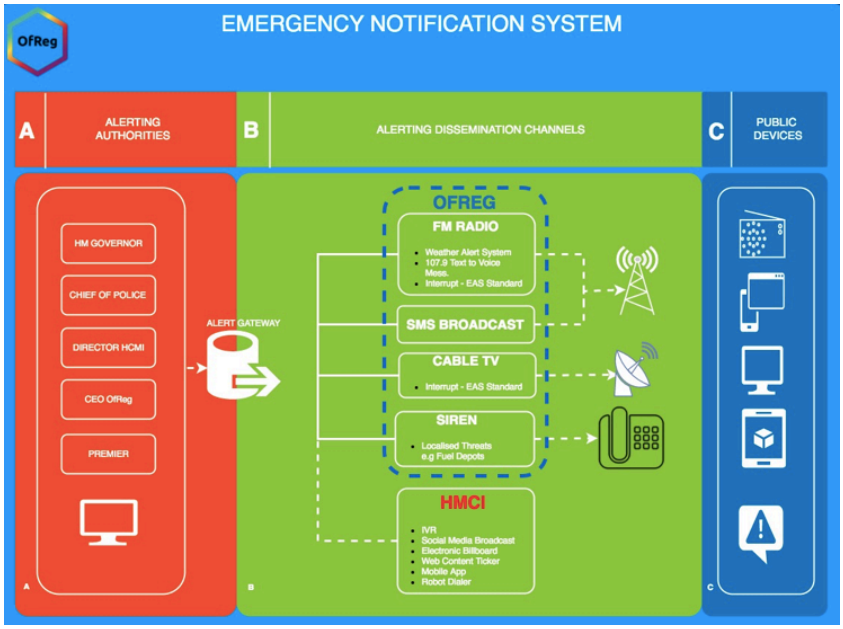

Figure 1: Proposed ENS configuration

When one views Table 1 and Figure 1 together, it paints a clear picture of the level of redundancy in communication channels needed to reach as much of the affected population as possible.

6.3 Activation Protocol

Each hazard management plan identifies the responsible persons that will declare the type of messages to be broadcast. Figure 2 shows the process for activating messages with the proposed ENS.

Figure 2: Activation protocol

7. Recommendations

1) OfReg recommends finalising the ENS recommendations, and then implementing an ENS in 2018 by deploying communication channels jointly with HMCI, based on the following approach:

    - OfReg can assist in the design and deployment of channels 1 through 6; and
    - HMCI can implement channels 7 through 12.

2) Ensure the ENS design accounts for the vulnerable in our communities. Recommend consulting the Department of Children and Family Services (DCFS) for feedback.

8. Responses to Discussion Paper

All Licensees as well as the public are welcomed to submit comments on this discussion paper. All submissions should be made in writing, and must be received by the Office by 5 p.m. on 6 April 2018 at the latest.

The Office will post any comments received within the stated deadline on its website by 5 p.m. on 27 April 2018.

Submissions may be filed as follows:

By e-mail to:
consultations@ofreg.ky

Or by post to:
Utility Regulation and Competition Office
P.O.Box 2502
Grand Cayman KY1-1104
Cayman Islands

Or by courier to:
Utility Regulation and Competition Office
3rd Floor, Alissta Towers
85 North Sound Rd.
Grand Cayman
Cayman Islands

The Office expects to publish a decision regarding the proposed ENS design and implementation by the end of the second quarter 2018.

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