



Case Study 1702

## The Canadian Coast Guard Receives Perfect Power Quality with Power Innovations' AMPS™

### The Customer

The Canadian Coast Guard was formed in 1962. A basic responsibility of the Canadian government is to protect the lives and safety of its citizens. In Canada's maritime realm, that responsibility falls on the Canadian Coast Guard. Its motto is Safety First, Service Always. The objective of the guard is to ensure the sustainable development and safe use of Canadian waters.

The Search and Rescue (SAR) lifeboat is one of the many boats used by the Coast Guard. The SAR lifeboat is a small shore-based, self-righting lifeboat approximately 15 meters long. It is capable of search and rescue operations of up to 100 nautical miles with a top speed of approximately 25 knots, carrying a crew of four or five persons. The boat is built by Victoria Shipyard, Ltd, of Victoria, British Columbia.

### The Challenge

The Canadian Coast Guard is constantly trying to improve boat living conditions for its crew. In a marine environment it is always a challenge to provide reliable, clean power to the SAR lifeboat. Previously, the SAR lifeboats were installed with another power system that interfered with communication capabilities. These communication capabilities are critical to the success of the missions. The Coast Guard wanted a new system that met its high standards. Another concern of the Coast Guard was that the other power system had to run at a constant high RPM to maintain a steady power output. Thus, when the boats were running at a lower RPM or idle, this power source was inaccessible.

### The Solution

The Canadian Coast Guard, through Public Works Government Canada and Victoria Shipyards Co, Ltd, B.C., contracted with Power Innovations Int'l to provide a new standard of reliable, clean power quality. The Auto-Regulated Motion Power System™ (AMPS™) was developed and customized to meet the specific needs of the Canadian Coast Guard. The AMPS addresses the critical issues of providing quality power and managing power on the lifeboats.

### Advantages of the AMPS

The AMPS allows for fluctuations in input, maintains a constant reliable output, does not interfere with communication capabilities, is equipped to handle environmental changes, and provides comfort to the Coast Guard crew.

#### Fluctuations in Input

Traditional systems require a constant high RPM to provide a steady power output. The AMPS continues to run as the input frequency ranges from 175 to 1k Hz. The alternator speed can also vary from 1,750 - 10,000 RPM.

#### Constant, Reliable Power Output

Regardless of the power input or frequency range, the AMPS produces a constant reliable 120 Volts, 60 Hz power output. The system provides a constant 5 kVA output.

## Canadian Coast Guard

**INDUSTRY SERVED**  
Homeland Security

### CHALLENGE

To provide reliable, clean power, without interfering with communication capabilities.

### SOLUTION

The Auto-Regulated Motion Power System™ (AMPS™) was developed and customized to provide quality power on the lifeboats.

### ADVANTAGES

- Fluctuations in input
- Constant, reliable power output
- Communication capabilities
- Environmental changes
- Provides comfort

## Communication Capabilities

Since the AMPS technology does not affect the other critical functions on the boat, Canadian Coast Guard crew members are able to communicate without interference.

## Environmental Changes

Because of the extreme environmental changes on the Canadian coast, the AMPS is equipped to handle temperatures ranging from -22° to +140° F, and humidity levels ranging from 10% - 95%.

## Provides comfort

Customized specifically for the Canadian Coast Guard, the AMPS supplies the boats with HVAC, cooking capabilities, and the ability to use any other appliances that require 120 Volts.

## Conclusions

George Kohorst, the senior electrician responsible for the building, testing, and delivery of the SAR lifeboats indicates, "When I helped design the SAR lifeboat, the AMPS technology was not available. When I heard about the technology, I knew this was the exact improvement needed for the lifeboats. I am excited to see that the Canadian Coast Guard is being so forward thinking in making these power improvements."

## Power: The Critical Need

In the corporate world, as well as in the consumer community, predictable, pure electric power is a necessity. Current utility power is not reliable and sometimes not present. Without clean, consistent power, today's technologies cannot function properly, and operations and service are compromised or cease.

Fluctuations in power supply – spikes, dips, brownouts, noise, and frequency variations – can all lead to a crippling loss of data resources. The effects of these problems range from erratic operation through hardware damage to irreversible losses of mission-critical data and operations.

## Competing Technology

In the past, the number one issue in dealing with power was backup power for equipment in the event of power failure. The basis of typical UPS systems and generators on the market today is still backup power; however, electrical equipment requires a new level of power quality and management tools that extend and enhance this most critical resource.

## Power Innovations

Launched in 1997, Power Innovations has pioneered a revolutionary set of solutions to generate, store, and manage AC power. Power Innovations' mission is to provide and manage continuous high-quality power in conjunction with, or even independent of, utility services worldwide. Power Innovations is helping forward-thinking companies accomplish this goal through a new class of technology called Uninterruptible Power Quality™ (UPQ™).

Today, Power Innovations' UPQ systems, coupled with its UPQnet-agent II™ IP management tools, assist organizations of every size in addressing the key issues surrounding power management.

Power Innovations' long term strategy includes fully integrated power management and control, storage, and generation for total power independence. Power Innovations' line of power management products is currently being marketed. The company is involved in the development of a spectrum of solutions for power storage. Currently Power Innovations offers a variety of alternative generation options. In the near future, Power Innovations plans to introduce the PowerWell™, a revolutionary solution to provide green renewable energy generation for homes and business, with or without grid interaction.

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- George Kohorst

Senior Electrician responsible for the building, testing, and delivery of the SAR lifeboat.



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