



PROJECT ID:
621

Green House Gas Emissions Assessments for DoN Fire-Fighting Trainers



Firefighters conduct a training exercise on a class A live fire trainer. (U.S. Navy photo by Heather Judkin)

OBJECTIVE

This proposal aims to fill a knowledge gap that currently limits the Navy's ability to assess firefighting training operations and identify opportunities for reducing greenhouse gas (GHG) emissions.

PROBLEM STATEMENT

In order to comply with the current Department of Defense (DoD) policy directive to achieve 65 percent GHG emission reduction by 2030 and net zero GHG emissions by 2050, it is first crucial to understand what those emissions are. There is currently a significant knowledge gap regarding the GHG-embodied emissions or 'footprint' of fire-fighting trainer (FFT) facilities acquired and operated by Department of Navy (DoN). This information is needed to make informed decisions and optimally invest limited operations and maintenance (O&M) funding towards achieving GHG goals.

DESCRIPTION

Accomplishing this objective will require implementation of a rigorous and standardized method of assessing GHG

emissions from FFTs that accurately captures all direct (e.g., fuel combustion and utility power consumption) and indirect (e.g., resource consumption or equipment O&M impacts) sources of GHG emissions. Further, the method must produce data and insights that are compatible with current methods of assessing GHG emissions of other operations at the policy level to enable an "apples-to-apples" comparison of results. Currently, there is no method of assessing GHG emissions from FFTs that meets this criteria. The goal of this project team is to develop, demonstrate and validate a Standard Operating Procedure (SOP) for DoN FFTs.

The basic conceptual procedures of the SOP follow recommendations by the Aircraft Environmental Support Office (AESO), a Navy specialty office functioning as the Navy's subject matter expert (SME) for estimating aircraft air emissions. The full procedure is organized into eight steps: 1) Understand the program operations; 2) Identify the GHG-emitting steps in the program; 3) Estimate the current total GHG emissions of the program (e.g., fuel burning,



fire suppressant chemicals, associated GHG emissions from power usage, transportation, and waste disposal); 4) Improve the program by identifying GHG-emitting steps that can be avoided, reduced, or altered; 5) Estimate total GHG emissions after improvement; 6) Repeat steps 4 and 5 until reduction goal met; 7) Document and report findings; 8) Generalize method used for firefighter training programs to other applicable Navy programs.

Site visits will be conducted at two representative DoN FFTs to gain data and information regarding systems designs, power consumption, etc. This data will be the basis for developing the SOP, which will then be demonstrated at the two sites and validated before moving forward with implementation at all DoN FFTs.

RETURN ON INVESTMENT

The project team has identified 11 DoN indoor FFTs both within the continental United States and abroad. This does not include outdoor aircraft FFT facilities which have yet to be identified. Factoring the number of facilities already identified, investment

opportunities in these facilities alone will justify the cost of this effort. Preliminary calculations that assume an average of 10 percent reduction in fuel usage and average capital investment of \$200K/site, expected benefits include a total GHG emission reduction of 3,800 tons per year (equivalent to planting 43,000 trees annually) and a simple ROI of 14.4 years. This does not factor additional benefits from reduced utility power consumption or O&M cost savings. Emission estimates are conservative and do not attempt to factor indirect sources of GHG emissions.

NAVY BENEFITS

The outcome of this effort directly aids the DoN's ability to comply with the DoD goals of 65% GHG emission reduction by 2030 and net zero GHG emissions by or before 2050. Filling knowledge gaps in GHG emissions and impacts would enable an accurate business case analysis for investment in these operations. Further, this effort will identify GHG emission-reducing investment opportunities that have additional benefits in the areas of installation energy resiliency,

sustainability, and cost savings.

TRANSITION DESCRIPTION

The project team will work to transition the SOP to facility end users and key DoN stakeholders. The team will also identify other applicable DoN programs and transition the SOP to the respective key stakeholders accordingly. Stakeholders for this effort currently include Commander, Navy Installation Command and Assistant Secretary of the Navy for Energy, Installation, and Environment. Facilitation of technology transfer will be enhanced through the implementation of software tools to enable ease of use, intuitive understanding, and rapid implementation of the SOP by non-SMEs. AESO and Naval Facilities Engineering and Expeditionary Warfare Center will work to incorporate the SOP into existing FFT support programs as well as other facility level programs.

CONTACT

For more specific information about this project, contact the Principal Investigator at 805-982-0000.



ABOUT THE NESDI PROGRAM

The Navy Environmental Sustainability Development to Integration (NESDI) program is the Navy's environmental research and development demonstration and validation program, sponsored by OPNAV N4I Installations Division and managed by the Naval Facilities Engineering Systems Command from the Engineering and Expeditionary Warfare Center in Port Hueneme, CA. The mission of the program is to provide solutions by demonstrating, validating and integrating innovative technologies, processes and materials and by filling knowledge gaps to minimize operational environmental risks, constraints and costs while ensuring Navy readiness and lethality.

For more information, visit the program's web site at www.navfac.navy.mil/nesdi or contact Ken Kaempffe, the NESDI Program Manager at 805-982-4893, DSN: 551-4893 or kenneth.c.kaempffe.civ@us.navy.mil.

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