



CITY OF BURLINGTON, VERMONT
**CITY COUNCIL TRANSPORTATION, ENERGY &
UTILITIES COMMITTEE**

c/o Department of Public Works
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Councilor Mark Barlow, Chair, North District
Councilor Gene Bergman, Ward 2
Councilor Hannah King, Ward 8

Inquiries:
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802.735.5324
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Transportation, Energy and Utilities Committee of the City Council
**Tuesday June 27, 2023 – Immediately following the Vehicle for Hire Licensing
Board Meeting at 5PM**

DPW Front Conference Room
645 Pine St, Burlington, VT 05482
Masks Optional

Join via Zoom, <https://us02web.zoom.us/j/84603122855>

To call into the meeting, including to speak during public comment:

Phone number: 312-626-6799, Webinar ID: 846 0312 2855

If you prefer to attend in a physical location, you may join us at 645 Pine St in the front conference room

–DRAFT AGENDA–

1. **Agenda**
2. **Minutes of [5.23.23](#) and [6.13.23](#)**
3. **Public Forum**
4. **N Winooski Ave Update**
 - Phillip Peterson, Chapin Spencer
 - 15 minutes
5. **Resolution on VTANG Carbon Emission – referred to TEUC on 12/6/22**
 - Councilors
 - 15 minutes
6. **Director's Report**
7. **Councilors' Update**
8. **Next Meeting 7/25/23**
9. **Champlain Parkway Walkthrough**
 - Chapin Spencer, Norm Baldwin
 - 45 minutes
10. **Adjourn**



OFFICE OF THE CLERK/TREASURER

City of Burlington

City Hall, Room 20, 149 Church Street, Burlington, VT 05401

Voice (802) 865-7000

Fax (802) 865-7000

TTY (802) 865-7100

MEMORANDUM

TO: Transportation, Energy & Utilities Committee Members

FROM: Lori Olberg, Licensing, Voting and Records Coordinator

DATE: December 6, 2022

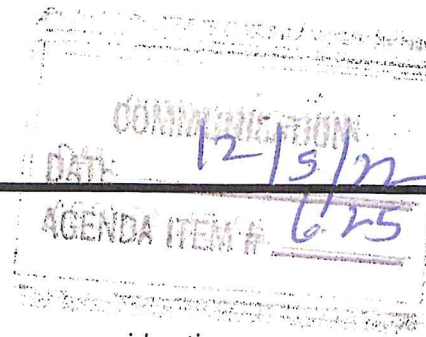
SUBJECT: 12/5/22 City Council Communication: Pike Porter, re: Fw: Greenhouse Gas, CAP resolution draft for your consideration

Enclosed please find a copy of this communication that was referred to your Committee for further discussion and deliberations. Please keep this as part of your records.

Thank you.

Lori Olberg

From: Gene Bergman
Sent: Wednesday, November 30, 2022 3:50 PM
To: Karen Paul; Lori Olberg
Subject: Fw: Greenhouse Gas, CAP resolution draft for your consideration
Attachments: GHG resolution.pdf; DAF Climate Action Plan - FINAL Oct 2022.pdf



Karen,

At their meeting of _____
the Burlington City Council voted to
waive the reading, accept this communication
and place it on file.
Attest: *Lori Olberg*

Can you please place Pike's communication and his attachments on the next consent agenda with the act
being to waive the reading and refer it to the council's TEUC for further discussion and deliberations?

Thanks.

Gene

From: Pike Porter <pikeporter@gmail.com>
Sent: Wednesday, November 30, 2022 3:40 PM
To: Perri Freeman <pfreeman@burlingtonvt.gov>; Mark Barlow <mbarlow@burlingtonvt.gov>; Jack Hanson <jhanson@burlingtonvt.gov>; Sarah Carpenter <scarpenter@burlingtonvt.gov>; Joseph Magee <jmagee@burlingtonvt.gov>; jcmagee626@gmail.com <jcmagee626@gmail.com>; Gene Bergman <gbergman@burlingtonvt.gov>; Ali Dieng <adieng@burlingtonvt.gov>; Joan Shannon <jshannon@burlingtonvt.gov>; Zoraya Hightower <Zhightower@burlingtonvt.gov>; Benjamin Traverse <btraverse@burlingtonvt.gov>; Karen Paul <kpaul@burlingtonvt.gov>
Subject: Fwd: Greenhouse Gas, CAP resolution draft for your consideration

[WARNING]: This email was sent from someone outside of the City of Burlington.

Hello my bold climate crisis warriors,

I noticed this afternoon that while I sent the email below to the TUEC members, I did not send it to the rest of the city council. Perhaps that is why it has languished.

Last month the Air Force published its climate action plan. I've attached a copy for your reference to this email. The internal highlights are my own.

The AF CAP aligns very well with the goals the city council professed in the 2019 emergency climate resolution. I've taken the liberty to draft a resolution I hope you will consider that recognizes the aligned goals of Burlington and the state and seeks to find one or more specific actions to meet those goals. Starting a discussion is a first step to reducing F-GH emissions and a resolution similar to the one I've attached would get that conversation going.

Pike

----- Forwarded message -----

From: Pike Porter <pikeporter@gmail.com>
Date: Wed, Oct 12, 2022 at 1:27 PM

Subject: Greenhouse Gas, CAP resolution draft for your consideration

To: Karen Paul <kpaul@burlingtonvt.gov>, Gene Bergman <gbergman@burlingtonvt.gov>, Mark Barlow <mbarlow@burlingtonvt.gov>

Hi Mark, Gene, and Karen,

Last week the Air Force published its climate action plan. I've attached a copy for your reference to this email. The internal highlights are my own.

The AF CAP aligns very well with the goals the CC professed in 2019. I've taken the liberty to draft a resolution I hope you will consider that recognizes the aligned goals and seeks to find one or more specific actions to meet those goals.

Pike

Please note that this communication and any response to it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.

In the year 2023,
Resolved by the City of Burlington as follows that

WHEREAS the United States Air Force published its Climate Action Plan (AFCAP) in October, 2022, known fully as *Department of the Air Force, Office of the Assistant Secretary for Energy, Installations, and Environment. October 2022. Department of the Air Force Climate Action Plan. Washington, DC.,* and

WHEREAS on October 7, 2021 Secretary Of Defense Lloyd J. Austin III stated that “Climate change is an existential threat to our nation’s security, and the Department of Defense must act swiftly and boldly to take on this challenge” (2), and

WHEREAS Frank Kendall, Secretary of the Air Force, stated that “Climate change is reshaping the increasingly complex global security environment and the Department of the Air Force must adapt and respond to that threat,” and stated that the Air Force must “recognize and reduce the department’s role in contributing to climate change,” and further stated that the Air Force, “cannot delay in addressing the impacts of climate change,” (1), and

WHEREAS the Air Force “recognizes that we are contributing to global climate change. The department is responsible for the largest portion of Department of Defense’s (DoD) greenhouse gas emissions” (4), and that “aviation fuel and energy to power aircraft comprises over 80 percent of the department’s energy use” (15), and the “reduction of fuel use offers the most significant opportunity to optimize our operational capability while simultaneously reducing greenhouse gas emissions” (15), and

WHEREAS the Air Force is working to “increase the use of simulation and augmented reality systems” for mission training (16), to reduce fuel usage and greenhouse gas emissions, and

WHEREAS the Air Force believes “collaboration with surrounding communities and industry is essential” to reducing greenhouse gas emissions (9), and the AFCAP advises that “collaborating with others is foundational to addressing the effects of climate change and to reducing greenhouse gas emissions. Close cooperation with...state and local entities...and the American people...will help to secure our common interests and promote our shared values” (12-13), and

WHEREAS the Air Force further believes, “To institute enduring advantages while combating the effects of climate change, we must fundamentally shift the way the department thinks, prepares, and acts. As we execute the department’s priorities through our planning documents, in our actions, and across our acquisitions, we must be deliberate in considering climate risks and implications” (11), and

WHEREAS, the City Council of the City of Burlington resolved on September 23, 2019 to commit achieving net zero greenhouse gas emissions by 2030, and found “that the United States of America has disproportionately contributed to the climate emergency...and thus bears an extraordinary responsibility to rapidly decarbonize and support global climate efforts going forward,” and

WHEREAS the City Council of the City of Burlington further found that “restoring a safe and stable climate requires a society-wide emergency mobilization on a scale not seen since World War II to reach zero greenhouse gas emissions across all sectors at wartime speed, to rapidly and safely drawdown or

remove all the excess carbon from the atmosphere, and to implement measures to protect all people and species from consequences of an abrupt climate crisis;” and

WHEREAS the City of Burlington is not currently on track to meet its net-zero emissions target by 2030, and

WHEREAS the F-35 training mission flights originating from the Burlington International Airport create as a conservative estimate over 100,000 tons to CO2 equivalent greenhouse gas emissions each year, and

WHEREAS, the City Council of the City of Burlington finds the Air Force goals of reducing greenhouse gas emissions and working collaboratively with communities to reduce these greenhouse gas emissions in direct alignment with the City of Burlington’s goal of net zero greenhouse gas emissions by 2030, and

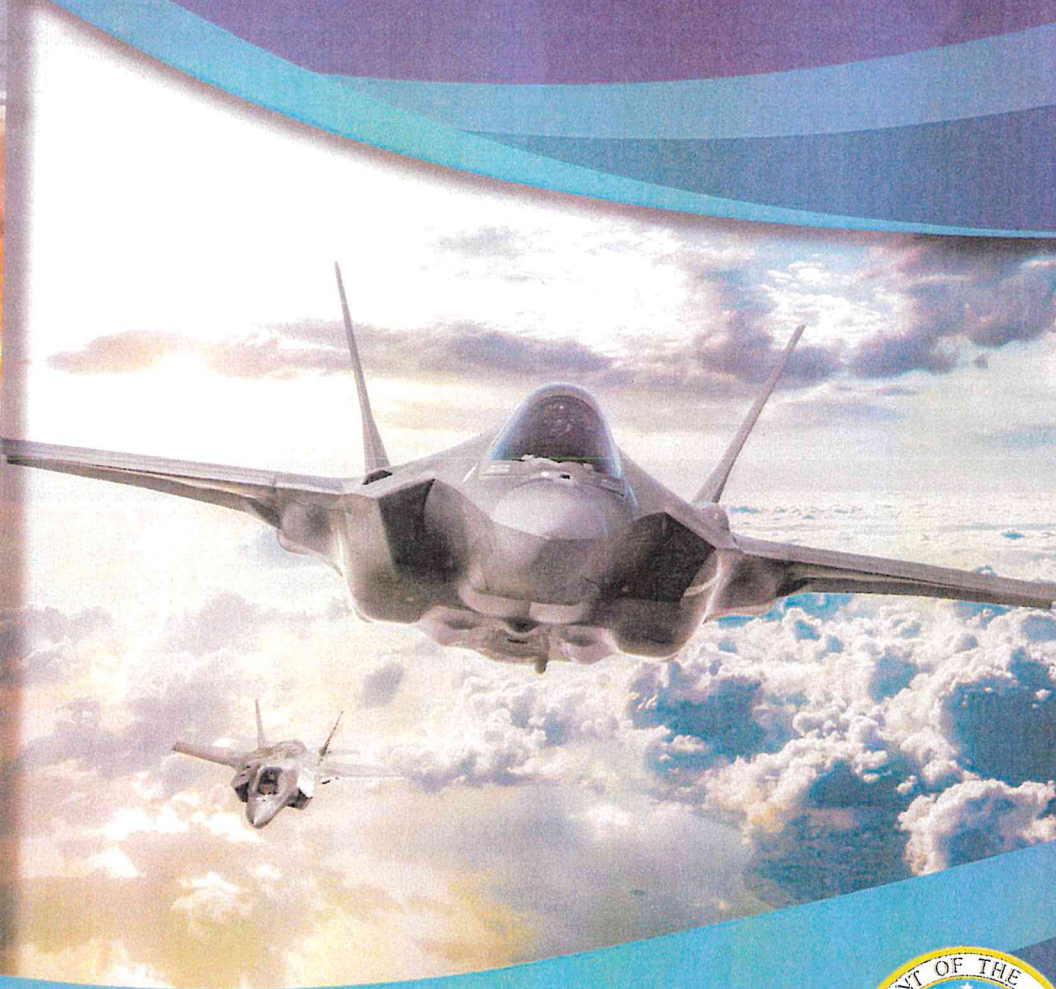
NOW, THEREFORE, BE IT RESOLVED that the City of Burlington calls on the United States Air Force, and the Governor of State of Vermont, as the Commander in Chief of the Vermont Air Force National Guard (VTANG), to work collaboratively with the City of Burlington to draft a specific plan by December 31, 2023 to adopt simulation and augmented reality training systems and take any other such measures as needed to eliminate aviation and ground greenhouse gas emissions at the Vermont Air National Guard base at the Burlington International Airport by 2030, and

BE IT FURTHER RESOLVED that the City of Burlington calls on the Vermont Air Force National Guard Adjutant General beginning in the year 2023, to calculate aviation and ground fuel usage at the VTANG base and to annually provide the Director of the Burlington International Airport a complete record of calculated aviation and ground greenhouse gas emission created at the base no later than April 1 of the year following.

Department of the Air Force

CLIMATE ACTION PLAN

October 2022



PLEASE CITE THIS CLIMATE ACTION PLAN AS:

Department of the Air Force, Office of the Assistant Secretary for Energy, Installations, and Environment.
October 2022. Department of the Air Force Climate Action Plan. Washington, DC.

Cover photo descriptions:

Flooding at Offutt Air Force Base

Extensive flooding from the Missouri River in March 2019 forced Offutt Air Force Base, Nebraska, to evacuate nine aircraft. Floodwaters contaminated with raw sewage covered about one third of the base, including 3,000 feet of runway. About 3,200 personnel lost their workspaces and 137 facilities were damaged, 60 of which were deemed unsalvageable. The re-build effort provides the opportunity to design a new layout of campuses that groups similar missions together. (U.S. Air Force photo by Tech Sgt Rachelle Blake)

Prescribed Burning at Edwards Air Force Base

Crews conduct prescribed burns September 2019 at Edwards Air Force Base, California. The prescribed burns reduce wildfire risk by removing old, dry fuels susceptible to wildfire. The burns also support habitat restoration by thinning out an invasive grass that competes with native species for natural resources. (U.S. Air Force photo by Harley Huntington)

Launch at Cape Canaveral Space Force Station

A United Launch Alliance Atlas V rocket carrying the GOES-T spacecraft for the National Oceanic and Atmospheric Administration and NASA lifts off from Space Launch Complex-41 at Cape Canaveral Space Force Station, Florida, March 1, 2022. GOES-T will provide NASA and NOAA with continuous imaging and atmospheric measurements of Earth's Western Hemisphere, lightning detection and mapping, solar imaging and space weather monitoring. (U.S. Space Force photo by Senior Airman Thomas Sjoberg)

F-35A

The F-35A is the U.S. Air Force's latest fifth-generation fighter. With its aerodynamic performance and advanced integrated avionics, the F-35A will provide next-generation stealth, enhanced situational awareness, and reduced vulnerability for the United States and allied nations. (Getty Images)

CALLING THE DEPARTMENT OF THE AIR FORCE TO ACTION



Climate change is reshaping the increasingly complex global security environment and the Department of the Air Force must adapt and respond to that threat.

Make no mistake – the department's mission remains to fly, fight, and win, anytime and anywhere. We are focused on modernization and improving our operational posture relative to our pacing challenge: China. We remain ready to respond and achieve air and space dominance when and where the nation needs us. Our mission remains unchanged, but we recognize that the world is facing ongoing and accelerating climate change and we must be prepared to respond, fight, and win in this constantly changing world.

Extreme weather and environmental conditions are already imposing high costs on Department of the Air Force installations and operational missions, while simultaneously posing new risks to our ability to train and operate effectively. In recent years, we have seen Tyndall Air Force Base, Florida, and many of its fighter aircraft devastated by Hurricane Michael, a third of Offutt

Air Force Base, Nebraska, flooded as the Missouri River overwhelmed levees, and multiple installations across the United States threatened by advancing wildfires. Extreme heat and humidity can also challenge our deployed forces' operational readiness. Environmental changes in the Arctic have led to increased adversary access and activity in the region, driving us to publish the Department of the Air Force Arctic Strategy in 2020.

We must prioritize air and space dominance in a security environment shaped by a changing climate, yet also recognize and reduce the department's role in contributing to climate change. Department capabilities that provide air and space dominance and global reach are fed by a steady diet of fossil fuel, representing the bulk of the Defense Department's carbon footprint and a continual burden on our changing climate. We will, therefore, demand increased efficiency in our warfighting systems and installations as well as strive to reduce our impact on the environment, all while enhancing our warfighting capabilities. Reducing our energy demand both enhances our mission capability and mitigates contested logistics risk.

The department will address the challenges and risks presented by climate change through the implementation of three climate priorities: (1) Maintain air and space dominance in the face of climate risks; (2) Make climate-informed decisions; and (3) Optimize energy use and pursue alternative energy sources.

We cannot delay in addressing the impacts of climate change. Alongside industry, government, and international allies and partners, the Department of the Air Force will invest in critical capabilities and technologies to modernize the force to be more ready and resilient. Our investments will target infrastructure, weapon systems, technology, and equipment that are demonstrably more efficient and combat-credible today to improve Air Force and Space Force warfighting capability tomorrow.

Every Airman and Guardian has a role in helping the department succeed in adapting to and overcoming the effects of climate change to ensure mission success across the force and across the globe. This Climate Action Plan is your roadmap to combat climate change; more than that, it is your call to action.

A handwritten signature in black ink, appearing to read "Frank Kendall".

Frank Kendall
Secretary of the Air Force



OVERVIEW

Climate change is an existential threat to our nation's security, and the Department of Defense must act swiftly and boldly to take on this challenge and prepare for damage that cannot be avoided.

There is little about what the Department does to defend the American people that is not affected by climate change. It is a national security issue, and we must treat it as such.

*Secretary Of Defense Lloyd J. Austin III,
October 7, 2021*

Why Climate Change Matters to the Department of the Air Force

Climate change matters first and foremost to the Department of the Air Force because it impacts our mission capabilities and those impacts are projected to increase over time. The department is composed of two military services—the Air Force and the Space Force. While both services have distinct missions, the role of both services is consistent: to deter conflict and if necessary, defeat adversaries across the air and space domains. Climate change has introduced additional challenges to achieving air and space dominance; climate change impacts our ability to maintain operational readiness, access strategic locations globally, and execute the operational mission.



March 2019 flooding at Offutt Air Force Base, Nebraska, limited runway use, even after floodwaters receded, due to inspection requirements. The new STRATCOM headquarters building, completed earlier in 2019, was built on higher ground, with barriers to reduce flood risk, and thus was not affected by the flooding. (Department of Air Force photo by Tech Sgt Rachelle Blake)

Impacts to Installations and Operational Capabilities

Increasing temperatures, changing precipitation patterns, and more frequent, severe weather conditions driven by climate change pose increasing risks to our installations and operational readiness. We cannot launch or recover aircraft on a flooded runway, nor can we operate from installations devastated by hurricanes and wildfires. In the Arctic, thawing permafrost affects infrastructure across the region, buckling roads and destabilizing building foundations. Melting sea ice accelerates the rate of coastal erosion, further threatening department infrastructure. With the Arctic region warming more quickly than any other parts of the globe, the region has become increasingly more accessible to strategic competitors, creating a demand signal for our response. Across the globe, extreme heat and humidity are a detriment to our ability to execute operations including impacting aircraft performance and payload capacity and directly threatening the health of deployed Airmen and Guardians. We must be able to effectively operate and dominate in evolving environments. Our bases are our power projection platforms and as those bases are increasingly impacted by the effects of climate change, we must adapt to ensure we can execute the mission on behalf of the nation.

Expanding Mission Requirements

Climate change is aggravating geopolitical unrest and acting as a threat multiplier, which is leading to new and expanded mission requirements for the department. Food insecurity, water scarcity, economic dislocation, and natural disasters perpetuate regional instability and test the capacity of governments around the world to protect their citizens. Violent extremist organizations take advantage of these conditions to increase their

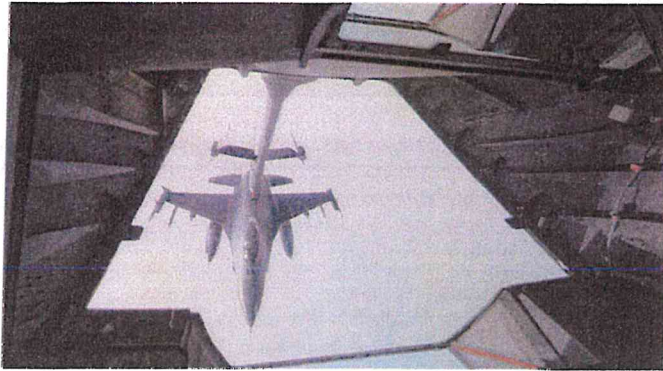
influence and power. We may be called upon to respond to increasing numbers of natural disasters to spiraling regional conflicts driven by instability.



Airmen from the 621st Contingency Response Wing at Joint Base McGuire-Dix-Lakehurst, New Jersey, prepare emergency equipment for immediate response to Hurricane Irene at the CRW's Global Reach Deployment Center in August 2011. The roughly 600 Airmen of the CRW specialize in creating aerial port and command-and-control facilities in damaged or hostile environments. Previous missions have included humanitarian responses to Haiti, Pakistan, and Japan in the aftermath of earthquakes, floods, and tsunami in addition to Hurricanes Ike, Rita, Gustav and Katrina. (Department of Air Force photo by TSgt Edward Gyokeres)

Contribution to Global Greenhouse Gas Emissions

The department recognizes that we are contributing to global climate change. The department is responsible for the largest portion of Department of Defense's (DoD) greenhouse gas emissions. While the Air Force fulfills much-needed global mobility and transportation requirements for the DoD, these same capabilities drive a huge demand for fuel. The increased risks driven by climate change cannot be addressed by emission reductions in the Air Force alone, but the Department of the Air Force will be part of the solution. Improving energy efficiency and deploying advanced energy technologies will



A KC-10 Extender, assigned to the 9th Air Refueling Squadron, refuels an F-16C Fighting Falcon Jan. 28, 2021, over California. The F-16s are assigned to the 177th Fighter Wing at the Atlantic City Air National Guard Base, New Jersey. (Department of Air Force photo by Tech Sgt. Traci Keller)

not only decrease emissions but will help mitigate combat risk and increase operational capability.

Department of the Air Force Climate Priorities

We are focused on building enduring advantages across the department. Combating the effects of climate change will enhance the force's resilience and agility, enabling us to field a combat-credible force that can train, fight, and win in an increasingly complex strategic environment. The department will address the challenges and risks presented by climate change through the implementation of three climate priorities: (1) Maintain air and space dominance in the face of climate risks; (2) Make climate-informed decisions; and (3) Optimize energy use and pursue alternative energy sources.

CLIMATE ACTION PLAN GOAL

The department is resilient to the effects of climate change and preserves a combat-credible force that can compete, deter, and win against pacing threats.

1. Maintain Air and Space Dominance in the Face of Climate Risks

Climate change acutely challenges the department's ability to achieve air and space dominance because climate change impacts our ability to maintain operational readiness, access strategic locations globally, and execute the operational mission. The department will ensure installation resiliency and adaptability in the face of challenges ranging from climate change to pacing threats.

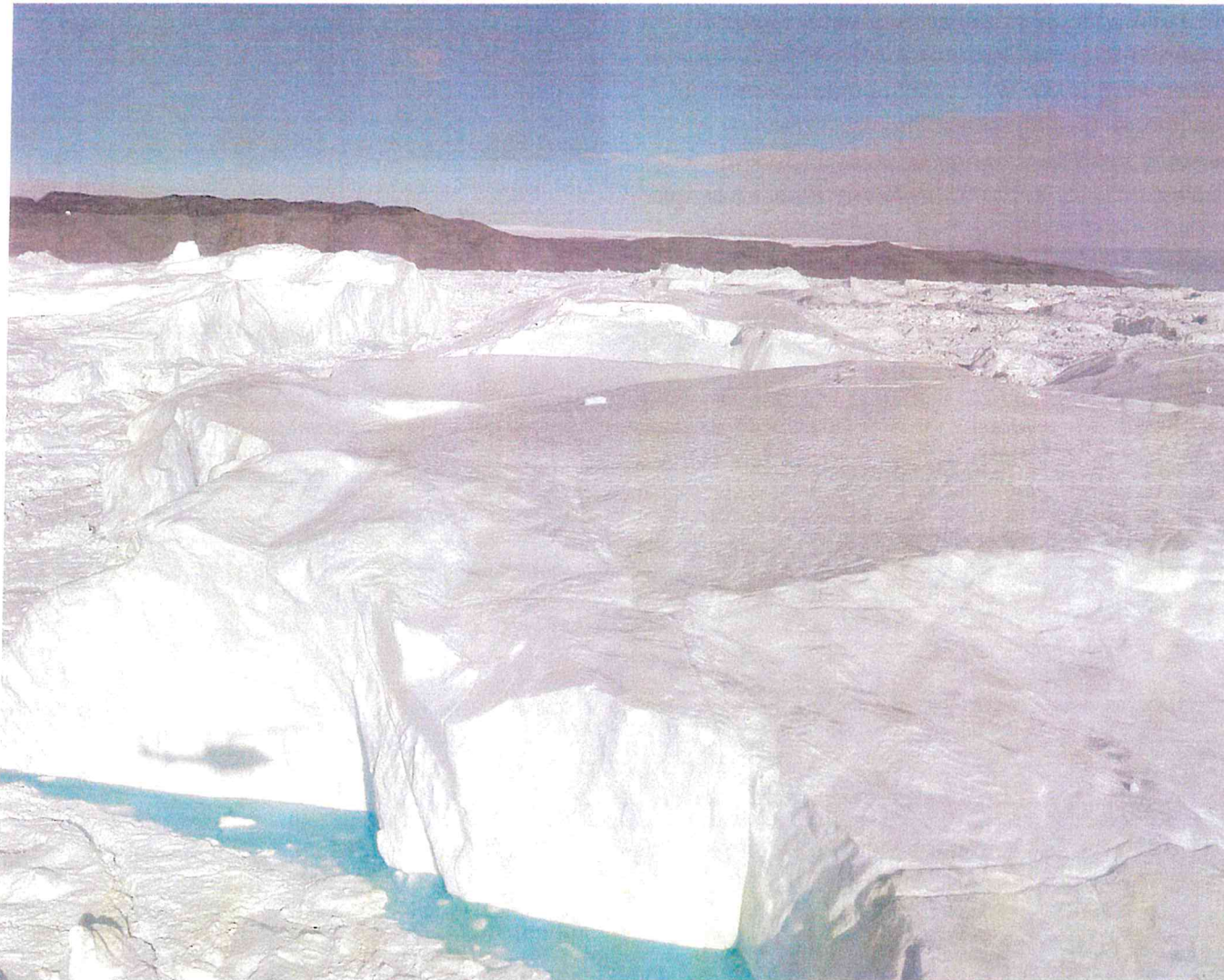


Planning charrette held at Tyndall Air Force Base, Florida, in March 2019 focused on designing an installation of the future, resilient and right-sized. (Department of the Air Force photo by Amy Vandever)

2. Make Climate-Informed Decisions

To institute enduring advantages while combating the effects of climate change, we must fundamentally shift the way the department thinks, prepares, and acts. As we execute the department's priorities through our planning documents, our actions, and across our acquisitions, we must be deliberate in including climate risks and security

implications. How we prepare our personnel, utilize data, and develop strategic plans, requirements, and wargames are foundational to the department. We must seamlessly integrate climate and operational considerations throughout our processes, plans, and decisions to develop and field a more agile, resilient, and responsible combat-credible force for today and into the future.



Air Force senior leaders participating in Operation Ugyjanagtuq, an Air Force Arctic Security Expedition, fly on a helicopter before landing on a glacier near Ilulissat, Greenland in September 2017. The senior leaders were in Greenland, Canada, and Alaska to better understand the challenges of operating in the Arctic and to build relationships with allies and partner nations. (Department of the Air Force photo by Tech Sgt Daniel DeCook)



3. Optimize Energy Use and Pursue Alternative Energy Sources

The Department of the Air Force aims to reduce the fossil fuel demand of our current and future weapon systems to enhance our ability to operate in contested environments, increase our readiness, reduce our logistics tail, and lower our greenhouse gas emissions. Through our planned initiatives, we will expand the operational range of our weapon systems and our ability to project power and support operations globally while simultaneously reducing greenhouse gas emissions. The department is pursuing alternative energy sources, including piloting projects that produce fewer greenhouse gas emissions and assessing their viability to support installation energy efficiency enterprise-wide.



An engineer checks a small satellite platform powered by environmentally friendly propellant developed by the U.S. Air Force Research Lab and launched aboard a SpaceX Falcon Heavy rocket. (Photo courtesy of Ball Aerospace)



This array of solar panels at Moody Air Force Base, Georgia, saves \$700,000 annually. (Department of the Air Force photo by Airman 1st Class Megan Estrada)

DEPARTMENT OF THE AIR FORCE CLIMATE PRIORITIES AND KEY RESULTS

The department recognizes that addressing climate change is not a single, stand-alone effort managed by one program office; climate change affects the entirety of the department's enterprise. Climate policies and actions must be incorporated across the Air Force and Space Force, and continually progress as technology advances, as our understanding of climate change impacts deepens, and as our mission requirements evolve. The Department of the Air Force will provide oversight, monitoring, and implementation direction for our climate efforts through the Senior Leader Climate Forum, comprising the Offices of the Secretariat, Deputy Chiefs of the Air Staff, and Deputy Chiefs of Space Operations, and chaired by the Assistant Secretary of the Air Force for Energy, Installations, and Environment.

Each of the three priority sections below concludes with a summary of objectives and key results. The key results describe the department's future state.

PRIORITY 1 – MAINTAIN AIR AND SPACE DOMINANCE IN THE FACE OF CLIMATE RISKS

Changes in the climate globally have introduced new and complex challenges to Air and Space Force

bases, which are critical to the department's ability to train, deploy, and operate anytime and anywhere. Resilient installations enable the accomplishment of all our missions, whether the department is conducting: fifth-generation fighter training; strategic missile warning; cargo, fuel or personnel movement; global intelligence, surveillance and reconnaissance; or conventional or strategic precision strike attack. The department must also protect the health and wellness of our Airmen, Guardians, and their families and maintain the readiness of our forces by providing safe and healthy communities at our installations worldwide.



A member of the 17th Civil Engineering Squadron enhances the safety of travel routes by clearing snow at Goodfellow Air Force Base, Texas, February 15, 2021. The 17th CES adapted and overcame the challenges of record-breaking snowfall with no proper removal equipment in order to continue the mission. (Courtesy photo)

MAINTAIN AIR AND SPACE DOMINANCE IN THE FACE OF CLIMATE RISKS

GOAL

- Department installations are resilient to the effects of climate change to sustain a combat-credible force and enable global power projection.
- Decreased department contribution to future climate risk via the reduction of greenhouse gas emissions.

The department operates 175 Air Force and Space Force installations across the globe consisting of 83 Active Duty, 83 Air National Guard, and 9 Air Force Reserve installations. The department is no stranger to the impacts of climate change on its installations. Permafrost thaw presents risks to critical infrastructure at Alaskan facilities. Coastal erosion encroaches on facilities and land at coastal installations. Heavy precipitation overwhelms drainage systems and causes temporary airfield



closures. Incidents of a weakening polar vortex shift the effects of winter storms as far south as our bases in Texas, resulting in power outages and damaged utility infrastructure.

Increased frequency and longevity of drought strains natural water systems and, when combined with increased wind, spur the rapid spread of wildfires. These wildfires threaten the health and safety of department personnel, reduce visibility and our ability to perform testing and training, threaten department infrastructure, and impede the delivery of key resources, such as power and water.

Though wildfires are integral to natural ecological processes, they can also threaten installations and military communities, and disrupt operational missions and readiness. In 2016, the Canyon Wildfire prompted evacuations and a rocket launch delay at Vandenberg Air Force Base (now Space Force Base), California, diverting critical resources and personnel to execute firefighting activities. The Canyon Wildfire alone cost \$17.5 million to extinguish and \$45 million to accomplish a full recovery.

We are also reckoning with how the department consumes and generates energy on our installations. The department's reliance on fossil fuels is expensive and increases future climate risk through the production of greenhouse gases that contribute to climate instability. We must rethink how we can make our installations more resilient to the effects of climate change, while simultaneously reducing our impact on the environment through energy efficiency measures.



A building concept for Tyndall Air Force Base contains features designed to withstand more frequent and intense hurricane forces following significant damage from Hurricane Michael in 2018. (Department of the Air Force photo)



Flames burn behind the Atlas 5 rocket pad at Vandenberg Air Force Base (now Space Force Base), California, in September 2016. The Canyon Wildfire postponed a launch mission, caused power outages, and destroyed some base power and communications infrastructure. (Photo courtesy of Santa Barbara County Fire Department)

To prevent our critical infrastructure from failing in increasingly extreme conditions, the department must focus on retooling bases and making structures, power grids, fuel distribution systems, and water lines more resistant to these climate-driven impacts. We are using wargames to assess the resiliency of bases and identify vulnerable supply chains, and researching cutting-edge technologies that enable operations off the grid if power fails. The department will also continue to develop secure, digitally integrated infrastructure to minimize vulnerabilities and interruptions to our facility control systems, including power distribution and airfield lighting.

Initiatives are underway to assess climate effects, modernize infrastructure, and adapt installations to minimize impacts from future climate threats. Updating current and future department policies, plans, and projects to integrate climate considerations provides an opportunity to address the evolving security environment and develop more resilient installations. Planning tools, such as the *Severe Weather and Climate Hazard Screening and Risk Assessment Playbook* and *Installation Energy Plans*, provide opportunities to baseline extreme weather and climatic conditions, assess energy and water requirements, and develop appropriate strategies to minimize future climate impacts on our infrastructure. Energy Resilience Readiness Exercises further assess and verify an installation's ability to operate despite power outages, thereby increasing installation resilience to man-made and climate-driven disruptions. These activities will inform future investments that protect installations, ensure mission execution, support installation security, and facilitate installation recovery from future climate impacts.



Members of MacDill Air Force Base and the local community build oyster reefs at MacDill Air Force Base, Florida, March 30, 2018. MacDill's eastern shoreline is prone to erosion, however oyster reefs aid in stabilizing the shoreline as well as improving MacDill's vast natural habitats. This build is part of the ongoing Oyster Reef Shoreline Stabilization project, which started in 2004. (Department of the Air Force photo by Staff Sgt. Teri Long)

The department released an *Infrastructure Investment Strategy* in 2019 to drive future funding strategies toward investing in an adaptive, resilient, right-sized, and fiscally sustainable infrastructure. The department invests in infrastructure to sustain DoD mission-essential functions, ensure readiness of power projection platforms, modernize infrastructure, innovate installation management practices, and decrease demands to climate-constrained resources, such as energy and water.

Collaboration with surrounding communities and industry is essential. The department will continue to develop solutions and share technologies alongside local communities, industry partners, and allies and partner nations to create holistic solutions for improving installation adaptability and resiliency.



OBJECTIVES AND KEY RESULTS FOR PRIORITY 1 - MAINTAIN AIR AND SPACE DOMINANCE IN THE FACE OF CLIMATE CHANGE

Objective 1: Modernize Infrastructure and Facilities

Invest in climate-ready and resilient installations to provide the platform from which to project air and space combat power.

Key Results (KR):

- **KR 1.1:** Targeted investments to improve base resilience, starting with \$36 million in fiscal year (FY) 23 and increasing to \$100 million per year by FY27.
- **KR 1.2:** Framework established to evaluate the effects of climate change at all department installations to inform resourcing and basing processes by FY24.
- **KR 1.3:** Department of the Air Force *Severe Weather and Climate Hazard Screening and Risk Assessment Playbook* fully implemented at installations requiring an Installation Development Plan in accordance with Department of the Air Force Instruction 32-1015, by the end of FY26, with identified climate hazards and risks incorporated into planning and project development processes.
- **KR 1.4:** Energy Resilience Readiness Exercises executed at 35 installations by the end of FY27, with results used to inform installation investments and facilitate mission execution from energy-efficient and climate-resilient bases.
- **KR 1.5:** Installation Energy Plans completed for installations requiring an Installation Energy Plan in accordance with Department of the Air Force Instruction 90-1701, by FY23, with identified projects submitted to compete for funding starting in FY24.
- **KR 1.6:** Department of the Air Force's installations portfolio is net-zero emissions by FY46, including a 50 percent emission reduction from 2008 levels by FY33.

PRIORITY 2 – MAKE CLIMATE-INFORMED DECISIONS

To institute enduring advantages while combating the effects of climate change, we must fundamentally shift the way the department thinks, prepares, and acts. As we execute the department's priorities through our planning documents, in our actions, and across our acquisitions, we must be deliberate in considering climate risks and implications. We will examine how we prepare our personnel, utilize data, and develop strategic plans, requirements, and wargames. Climate considerations must be incorporated throughout our processes, plans, and decisions to develop and field a more agile, resilient, combat-credible force for today and into the future.



Lt. Gen. Kenneth Wilsbach, Alaskan Command commander, and Gen. Ellen Pawlikowski, Air Force Materiel Command commander, look at a cold weather gear display during an Arctic Security Expedition Sept. 8, 2017, at Eielson Air Force Base, Alaska. Air Force senior leaders from Headquarters Air Force and major commands visited Eielson AFB and other locations in Alaska to learn and discuss the challenges units face operating in the Arctic region and the effects climate change may have on their mission. (Department of Air Force photo by Staff Sgt Jerilyn Quintanilla)

Developing a climate-literate workforce ensures that department personnel have the knowledge, skills, and abilities to understand when, why, and how to apply climate considerations to improve the department's ability to field a ready force. Mission requirements remain our highest priority; we seek to inform plans, processes, and decisions with climate change considerations. The department will rely on this climate-literate force to develop innovative solutions for using energy and addressing climate risks, improving our ability to adapt and to reduce greenhouse gas emissions.



A climatological education session for a 14th Weather Squadron course includes discussions of climate projection methodology. (Department of the Air Force photo by 14th Weather Squadron)

MAKE CLIMATE-INFORMED DECISIONS

GOAL

- Department is equipped with the knowledge, skills, and abilities to mobilize, deploy, and sustain a combat-credible force globally in the face of climate threats.
- An established culture of incorporating climate change considerations across our processes, plans, and decisions to build a more climate resilient force while also reducing future climate risk.



By instilling a culture in which Airmen and Guardians understand the implications of climate change, our personnel will be empowered to make climate-informed decisions to improve the readiness and operational capability of the force.

Accurate climate data and predictive analytics are critical to decisions that impact everything from the development of engineering standards for installations, to the acquisition and life-cycle sustainment of weapon systems, to planning and operations.

The department will continually acquire improved extreme weather sensing solutions, develop expertise, and analyze authoritative climate and extreme weather data to enable an informed understanding of the operating environment. This understanding serves as a strategic advantage over adversaries and assists the department in optimizing our operational performance and our resourcing decisions.

Our strategic efforts align with the National Defense Strategy, the DoD Climate Adaptation Plan, and

the DoD Climate Risk Analysis, which call upon the military services to fully incorporate climate considerations into their plans and policies. Our strategic efforts are also consistent with the 2020 Department of the Air Force Weather Enterprise Strategy, which outlines the department's plan to develop and augment our space-based environmental monitoring capabilities for timely and accurate weather products to make informed decisions for Joint operations, especially over denied and austere areas. We are actively working to incorporate climate change considerations into our internal documents, ranging from futures and foresight analysis to our methodology in developing future war-fighting concepts to our requirements in developing future war-fighting capabilities. The department is seeking ways to better measure energy use in its current weapon systems and creating criteria to emphasize energy optimization the development of future weapon systems.

Wargaming is one of the department's primary evaluation tools, helping us test new platforms, optimize fuel delivery logistics, and factor in

environmental risks that could impact our ability to win in a contested environment. Future wargames will include an increased emphasis on incorporating allies and partner nations, and on testing sustainment capabilities, as both aspects of warfare have proven to be key to successful power projection.

Collaborating with others is foundational to addressing the effects of climate change and to reducing greenhouse gas emissions. Close cooperation with



The 607th Weather Squadron setting up a tactical meteorological observing system used to support mission operations. (Department of the Air Force photo by American Forces Network Humphreys)

national security stakeholders (Federal agencies, Congress, state and local entities, private industry, academia, non-governmental organizations, and the American people), as well as allies and partner nations, will help to secure our common interests and promote our shared values. As we undertake departmental transformation, we will also ensure interoperability with our allies and partner nations, a key component to maintain integrated deterrence. Further, we will expand collaborative planning opportunities to exchange knowledge and share innovative technologies and to achieve economies of scale with our stakeholders, other military services, and international partners. Our activities will also reflect the forthcoming, updated DoD Environmental Justice Strategy. Environmental justice considerations require that department programs, policies, and activities address disproportionately high and adverse human health, environmental, climate-related, and other cumulative impacts on disadvantaged communities.

Finally, as we work to incorporate climate considerations into supply chain guidance and strategies to increase supply chain resilience for the delivery of goods and services, we will reduce risk to the industrial base, and better prepare the department to project power globally. Ultimately, climate considerations in requirements development and acquisition have a direct impact on long term mission assurance and effectiveness.



An Integrated Air and Missile Defense Wargame at Joint Base Pearl Harbor-Hickam, Hawaii. Wargames can improve understanding of potential operational impacts from extreme weather and climate. (Department of the Air Force photo)

OBJECTIVES AND KEY RESULTS FOR PRIORITY 2 - MAKE CLIMATE-INFORMED DECISIONS

Objective 2.1: Develop a Climate-Informed Workforce

Developing a climate-informed workforce ensures that department personnel have the knowledge, skills, and abilities to understand when, why, and how to apply climate considerations to improve the department's ability to field a ready, combat-credible force.

Key Results (KR):

- **KR 2.1.1:** Climate considerations integrated into department professional military education curriculum by FY24.
- **KR 2.1.2:** Climate considerations integrated into department technical and continuing education curriculum by FY24.



Objective 2.2: Integrate Security Implications of Climate Change into Department Strategy, Planning, and Operations

Incorporating the security implications of climate change into our processes, plans, and decisions enables the department to develop a more agile, responsive, and ready force that extends the department's ability to support integrated deterrence and project power globally.

Key Results (KR):

- **KR 2.2.1:** Climate considerations, security language and goals incorporated in Air Force and Space Force concept development and Air Force Major Command and Space Force Field Command operational plans and campaign plans starting in FY24.
- **KR 2.2.2:** Climate considerations incorporated into department Title 10 wargames starting in FY23.
- **KR 2.2.3:** Potential effects and security implications of climate change included in engagements with allies and partner nations starting in FY23.

Objective 2.3: Incorporate Climate Considerations into Department Requirements, Acquisition, and Supply Chain Processes

Incorporating climate considerations into the department's requirements process, materiel acquisition regulatory guidance, and supply chain guidance and strategies enables the department to purchase, field, and continuously supply a more agile, resilient, combat-credible force to support integrated deterrence and power projection globally.

Key Results (KR):

- **KR 2.3.1:** Energy Key Performance Parameters incorporated in weapon system capability requirements in accordance with the Joint Capabilities Integration and Development System Manual.
- **KR 2.3.2:** Effects of climate change identified for select supply chains by end of FY23 with risk mitigation approaches informed by the end of FY24.

PRIORITY 3 – OPTIMIZE ENERGY USE AND PURSUE ALTERNATIVE ENERGY SOURCES

Reversing the effects of climate change will require a global response—we cannot do this alone. The actions we undertake today to optimize our energy use and to diversify energy sources will make a difference in increasing the department's air and space dominance and combat effectiveness.

OPTIMIZE ENERGY USE AND PURSUE ALTERNATIVE ENERGY SOURCES

GOAL

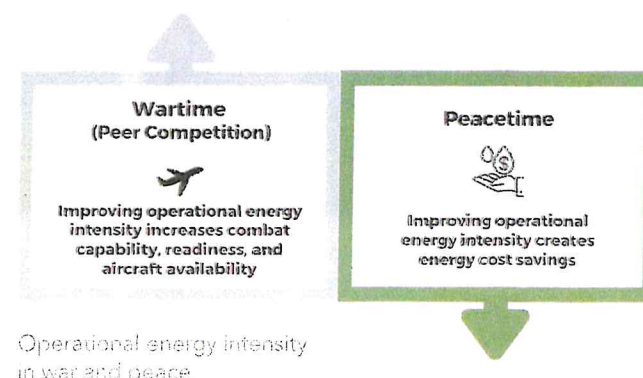
- Reduced demand on the department's logistics and sustainment tail and improved ability to sustain a combat-credible force in support of integrated deterrence.
- Decreased department contribution to future climate risk via the reduction of greenhouse gas emissions.

Fuel is simultaneously a vital enabler and a limiting factor to our operational capability; fuel is often the primary determining factor in how far we can go and where we can go around the globe. Throughout wargames and real-world scenarios, fuel storage, logistics support, and lines of communication are consistently shown to be a liability that is frequently targeted by our adversaries. As we retool our warfighting and power projection capabilities, we must decrease our fuel demand and diversify how we generate power.

Operational energy (aviation fuel and energy to power aircraft) comprises over 80 percent of the department's energy use. Reduction of fuel use offers the most significant opportunity to optimize our operational capability while simultaneously

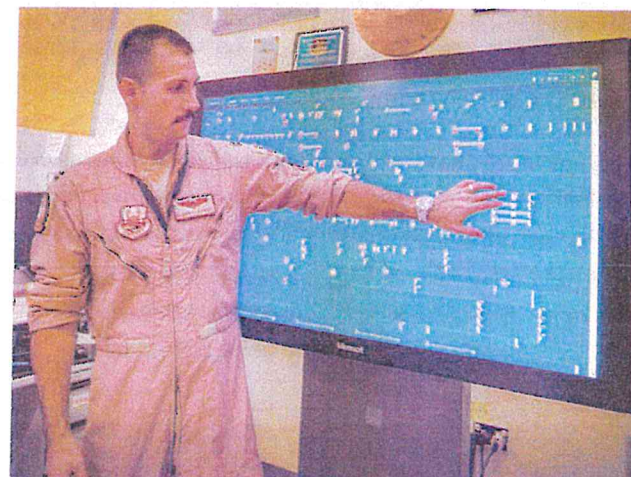
reducing greenhouse gas emissions. To accelerate change and meet 21st century energy demands, we will continue to optimize our processes, technologies, and weapon systems to support joint all-domain operations globally as we combat the growing threat to our logistics capabilities and capacity. Collaborating with joint and international partners, through such forums as the Global Air Forces Climate Change Collaboration and the State Partnership Program, will remain foundational to our success as we share valuable knowledge and innovative technologies and ensure interoperability. In the short term, the pursuit of low-cost, high-return investments will optimize aviation fuel use, increase range and time-on-station, decrease maintenance issues, and streamline planning for our platforms.

Our overall goal is to deliver more combat power to the warfighter using less fuel. For the Air Force, this is measured by operational energy intensity, referred to as "lethality per gallon." For example, if a mobile aircraft consumes less fuel to deliver the same amount of cargo or fuel to the warfighter, whether it is because of aerodynamic advancements or more streamlined flight planning, then the operational energy intensity improves – providing more lethality per gallon. Each initiative's individual metric, such as test events per gallon or offload per gallon, is then aggregated into an overall operational energy intensity metric, allowing us to effectively measure percentage improvements over time.

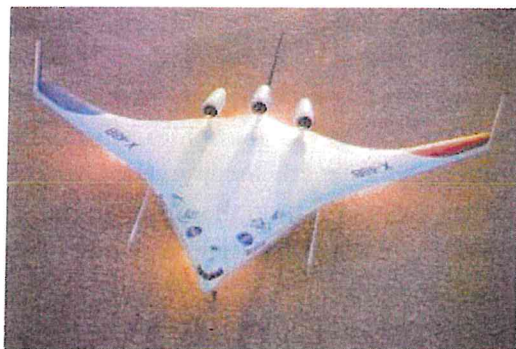




The department is working with industry to incorporate commercially proven drag reduction technologies onto current platforms, modernize aircrew and aircraft planning and allocation software, employ engine sustainment technologies, and increase the use of simulation and augmented reality systems. We will also employ cost-savings rebates to incentivize energy-aware behavior in Airmen. The Mission Execution Excellence Program (MEEP) is a new initiative focused on optimizing fuel usage in mobility aircraft that consume the largest portion of the Air Force's fuel. The program leverages innovative ideas from Airmen, employs commercial aviation best practices, and equips aircrew members with more precise fuel planning tools. This will help instill a culture of efficiency among Airmen, both to prepare for conflict with a near-peer adversary



Capt Gary Olkowski demonstrates how to use Jigsaw, a tanker planner tool, which digitizes and streamlines aerial refueling planning. Jigsaw reduces fuel use by 180K gallons per week and prevents 46K metric tons of CO2 emissions annually. (Department of the Air Force photo)



Upper left: The X-48B Blended Wing Body technology demonstrator aircraft, developed by NASA and Boeing (Boeing photo). Upper right: Six Microvernes™ bonded to the aft end of a C-17 Globemaster III fuselage (U.S. Air Force photo). Lower right: The engine of an AC-130J Ghost Rider is washed with Aerocore's nucleated foam wash (Aerocore photo). Lower left: U.S. Air Force student pilots train on a virtual reality flight simulator (U.S. Air Force photo).

and reduce total fuel consumption by an estimated 26 million gallons annually.

Over the next five years, we estimate these efforts will cut greenhouse gas emissions by a combined 3.7 percent (or approximately 650,000 metric tons annually), the equivalent of 67 million gallons of fuel. By 2032, we aim to double this reduction in greenhouse gases.

To meet our ambitious objective, we will need additional investment in fuel-saving projects such as advanced winglets, compressor blade coatings and scanning, and engine wash technology.

The department is also pursuing longer term initiatives that promise revolutionary advances in aircraft propulsion and design, as well as in development and use of alternative fuel sources. Agility Prime, an Air Force-led innovation program, is exploring the electrification of rotorcraft and small mobility aircraft to decrease fuel logistics risk and improve readiness. We are also collaborating with the Defense Innovation Unit, the National Aeronautics and Space Administration, and industry partners to accelerate prototyping of ultra-efficient aircraft designs for future tanker and mobility aircraft. For example, development of blended wing body

aircraft could drive transformative changes, as this aircraft design increases aerodynamic efficiency by at least 30 percent over current Air Force tanker and mobility aircraft and enables dramatically greater fuel offload at range to ensure strike capabilities in a contested environment.

The department is piloting projects that produce fewer greenhouse gas emissions and assessing their viability to support installation energy efficiency enterprise-wide. At Eielson Air Force Base, Alaska, the department is piloting the DoD's first micro-reactor to promote energy security and independence by employing a safe and resilient source of carbon pollution-free energy. Efforts are also underway to electrify non-tactical support vehicles and equipment, including deployment demonstrations to test their integration with existing



The solar array installed at Hill Air Force Base, Utah, in 2018 increased the amount of renewable energy produced on base and will be incorporated into future microgrid planning. The new system was installed through an Energy Savings Performance Contract that costs the government no upfront money. Energy Solutions Group will operate and maintain the system during the 23-year arrangement. Pictures show a conduit line being installed and electrical wiring clips attached to the new panels. (Department of Air Force photo by R. Nial Bradshaw)



infrastructure and to inform strategic implementation across the department. These innovative solutions will promote energy resilience and lead technological innovation over competitors.

The department is expanding the use of renewable and alternative energy sources at Air Force and Space Force bases by executing over 300 renewable energy projects. In FY 2021, 6.9 percent of Department of the Air Force electricity came from renewable sources including from a 3.55 megawatt (MW) solar array at Hill Air Force Base, a 15MW solar array at Nellis Air Force Base, a 28MW solar array at Vandenberg Space Force Base, and a 33.5MW solar array at Eglin Air Force Base. We will continue to research opportunities for exploring alternative energy sources for both installations and weapon systems to diversify our energy options while

sending a "demand signal" to industry, which will need to supply those options for our use.

Finally, in order to achieve our fuel efficiency objectives, we must collect, access, and analyze operational energy data to identify additional areas of improvement. Fuel use data is critical to understanding how operational energy impacts department combat capability. With accurate, comprehensive, and accessible data on aviation and launch vehicle fuel use, the department can account for fuel use impacts to mission effectiveness and greenhouse gas emissions, as well as evaluate the impact of operational efficiency optimization actions. Further, tracking and analyzing installation and infrastructure energy use will help capture progress towards modernizing our infrastructure and facilities.



Workers prepare to splice a "T" pipe while installing a geothermal system at Selfridge Air National Guard Base, Michigan, September 29, 2011. (Department of Air Force photo by John Swanson)

OBJECTIVES AND KEY RESULTS FOR PRIORITY 3 - OPTIMIZE ENERGY USE AND PURSUE ALTERNATIVE ENERGY SOURCES

Objective 3.1: Improve Operational Energy Intensity

Optimized aircraft energy use increases the readiness and operational capability of the department, decreases risk to logistics supply chains, and informs operational plans while reducing greenhouse gas emissions. Optimization includes the adoption of ultra-fuel-efficient aircraft designs, which provide an opportunity to significantly improve combat capability.

Key Result (KR):

- **KR 3.1.1:** Operational energy intensity of Air Force flying missions increased 5 percent by FY27 and 7.5 percent by FY32 through standardized use of aircraft drag reduction technologies, modern software scheduling tools, and enhanced engine sustainment practices.
- **KR 3.1.2:** Development and testing of a full-scale blended wing body prototype completed by FY27.

Objective 3.2: Adopt Alternative Energy Sources

While the department cannot singularly reverse the causes of climate change, we can reduce our energy footprint and increase demand for zero-carbon-based energy sources. We must both reduce our energy consumption and move toward carbon pollution-free energy sources.

- **KR 3.2.1:** Completed successful pilot of drop-in compatible sustainable aviation fuel at two operational Air Force locations by FY26 where 10 percent of all purchased aviation fuels consist of sustainable aviation fuel blends at the same or less cost than traditional aviation fuel. The pilot project will validate operational, infrastructure, and logistical requirements for blending and quality control in the use of sustainable aviation fuel.
- **KR 3.2.2:** Completed successful pilot of micro-reactors by FY28 to demonstrate viability of this technology as a feasible alternative energy source.
- **KR 3.2.3:** 100 percent carbon pollution-free electricity on a net annual basis by FY30, including 50 percent 24/7 carbon pollution-free electricity.
- **KR 3.2.4:** 100 percent zero emission non-tactical vehicles by FY35, including 100 percent zero emission light-duty vehicle acquisitions by FY27 and aircraft support equipment by FY32.

CONCLUSION

By maintaining air and space dominance in the face of climate risks, making climate-informed decisions, and optimizing energy use and pursuing alternative energy sources, the department will prove resilient to the effects of climate change and preserve a combat-credible force that can compete, deter, and win.



GLOSSARY

24/7 Carbon Pollution-Free Electricity: Carbon pollution-free electricity procured to match actual electric consumption on an hourly basis and produced within the same regional grid where the energy is consumed (Executive Order 14057, Catalyzing Clean Energy Industries and Jobs through Federal Sustainability)

Adaptation: Adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects. (DoD Directive 4715.21, Climate Change Adaptation and Resilience, August 31, 2018)

Climate Change: Variations in average weather conditions that persist over multiple decades or longer that encompass increases and decreases in temperature, shifts in precipitation, and changing risk of certain types of severe weather events. (DoD Joint Publication 1)

Climate-Literate: An understanding of future climate conditions and risks to inform strategies, plans, and operations. (Department of Air Force working definition)

Carbon Pollution-Free Electricity: Electrical energy produced from resources that generate no carbon emissions, including marine energy, solar, wind, hydrokinetic (including tidal, wave, current, and thermal), geo-thermal, hydroelectric, nuclear, renewably sourced hydrogen, and electrical energy generation from fossil resources to the extent there is active capture and storage of carbon dioxide emissions that meets U.S. Environmental Protection Agency requirements. (Executive Order 14057, Catalyzing Clean Energy Industries and Jobs through Federal Sustainability)

Non-Tactical Vehicles: Any commercial motor vehicle, trailer, material handling or engineering equipment that carries passengers or cargo acquired for administrative, direct mission, or operational support of military functions. All DoD sedans, station wagons, carryalls, vans, and buses are considered "non-tactical." (DoD Instruction 4500-36, Acquisition, Management, and Use of Non-Tactical Vehicles (NTVs))

Operational Energy Intensity: Measurement of lethality (e.g., the unit output or mission activity) per gallon. Example metrics: actual ton miles per gallon, offload per gallon, test events per gallon, time on station per gallon, simulated/actual weapons released per gallon, collections per gallon, pilots (B-course equivalent) per gallon, and syllabus events per gallon.

Resilience: Ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. (DoD Directive 4715.21, Climate Change Adaptation and Resilience, August 31, 2018)

Right-sized: A "right-sized" installation portfolio optimizes infrastructure quantity and quality to assure combat readiness and protect our operational capability, enabling multi-domain missions across the full spectrum of operations. (Department of Air Force Basing and Logistics Flight Plan, Civil Engineer Annex, January 2020)



FOR MORE INFORMATION:
Visit <https://www.safie.hq.af.mil>



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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

MEMORANDUM

To: Transportation, Energy & Utilities Committee

From: Chapin Spencer, Director

CC: Norm Baldwin, P.E., City Engineer, Division Director – Technical Services
Corey Mims, P.E., Senior Public Works Engineer
Phillip Peterson, P.E., Public Works Engineer
Kara Alnasrawi, Director, Business & Workforce Development
Meagan Tuttle, Director, Office of City Planning

Date: June 27, 2023

RE: North Winooski Avenue Project Updates and Monitoring

Background:

At the April 17, 2023 Council meeting, the Council passed the following resolution regarding the upcoming implementation of the Winooski Avenue Corridor Study recommendations between North Union Street and Riverside Avenue:

“Move to accept the communication, request the Administration to continue to engage with the community, including but not limited to the requests made by the public at our April 17, 2023 meeting, and refer the matter to the TEUC in order to work with the Administration on the plan to monitor and evaluate the changes to the North Winooski Avenue corridor and any proposal to address the transportation and neighborhood needs arising from the evaluation.”

The Transportation, Energy and Utilities Committee (TEUC) met to discuss the topic at the 5-3-23 meeting. Out of that discussion, DPW staff agreed to draft up a proposed scope of work for review at a subsequent meeting.

Proposed North Winooski Avenue Metrics:

DPW Staff recommends the following data be collected and provided to the TEUC and the DPW Commission annually for the two years after the lane adjustments are implemented:

- Safety:
 - Collect crash data one year and two years after implementation and compare the data to historic trends. Note that it takes many years of crash data to see statistically significant trends.

An Equal Opportunity Employer

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- Parking Utilization:
 - Conduct biannual day and evening parking occupancy counts along the two block corridor and one block each side of intersecting streets.
- Bike/Pedestrian Traffic Counts:
 - Conduct bicycle and pedestrian counts in partnership with the Chittenden County Regional Planning Commission
- Stakeholder Survey:
 - Conduct a survey of adjacent stakeholders 3-6 months after the lane adjustments in partnership with the Department of Business & Workforce Development

There was discussion at the May 3 TEUC meeting about the concept of a parking and transportation equity analysis that could look at the amount of public parking spaces and other publicly available transportation infrastructure per business in the City's various commercial districts. Each commercial district has its own unique characteristics – types of businesses, adjacent land uses, zoning regulations, level of transit service, age of development, etc. Conducting a citywide comparison of commercial districts should have a clear charge, lead entity, and the resources identified to undertake such an initiative.

A parking and transportation equity analysis is a significant multi-departmental undertaking and Team DPW would like to discuss the concept in further detail and review other potentially similar efforts before agreeing to undertake a new standalone project. The Office of City Planning is working on the scope for the City's Transportation Demand Management (TDM) Study and it may be possible that some of the desired equity elements above could be included in the TDM work. Additionally, if we decide there is additional work needed beyond other existing planning efforts and it is a high priority for the City, we could apply for Chittenden County Regional Planning Commission funding to assist with consulting support and other resources.

Additional Comments:

- Given that it can take a while for residents and visitors to get used to significant traffic changes, staff recommends that we give activity a chance to settle before conducting the data collection identified above.
- Given the significant parking regulation changes along the corridor, the DPW Director has authorized a one-month period to issue warning tickets for time-limited violations to assist in the transition. Safety violations (no parking here to corner, parking in front of hydrants, unpermitted use of handicap parking) will still receive tickets during the warning period.
- To be responsive to public comments on equity, DPW staff requested and received Commission approval to reduce time limited parking violation fees from \$75 to \$15 now and to \$20 in July – the same amount as meter violations.
- DPW staff continues to work with the Community Health Centers to support their evaluation of off-street parking options. We shared five conceptual off-street parking options with CHC leadership a month ago and we are waiting to hear whether they want to advance any of the options. I have told them I will work to secure some match funding for additional design work if they have a preferred design alternative that has support of any adjacent impacted property owner(s).

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“Move to accept the communication, request the Administration to continue to engage with the community, including but not limited to the requests made by the public at our April 17, 2023 meeting, and refer the matter to the TEUC in order to work with the Administration on the plan to monitor and evaluate the changes to the North Winooski Avenue corridor and any proposal to address the transportation and neighborhood needs arising from the evaluation.”

The Transportation, Energy and Utilities Committee (TEUC) met to discuss the topic at the 5-3-23 meeting. Out of that discussion, DPW staff agreed to draft up a proposed scope of work for review at a subsequent meeting.

Proposed North Winooski Avenue Metrics:

DPW Staff recommends the following data be collected and provided to the TEUC and the DPW Commission annually for the two years after the lane adjustments are implemented:

- Safety:
 - Collect crash data one year and two years after implementation and compare the data to historic trends. Note that it takes many years of crash data to see statistically significant trends.

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A parking and transportation equity analysis is a significant multi-departmental undertaking and Team DPW would like to discuss the concept in further detail and review other potentially similar efforts before agreeing to undertake a new standalone project. The Office of City Planning is working on the scope for the City's Transportation Demand Management (TDM) Study and it may be possible that some of the desired equity elements above could be included in the TDM work. Additionally, if we decide there is additional work needed beyond other existing planning efforts and it is a high priority for the City, we could apply for Chittenden County Regional Planning Commission funding to assist with consulting support and other resources.

Additional Comments:

- Given that it can take a while for residents and visitors to get used to significant traffic changes, staff recommends that we give activity a chance to settle before conducting the data collection identified above.
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DEPARTMENT OF PUBLIC WORKS**

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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

MEMORANDUM

To: Transportation, Energy & Utilities Committee

From: Chapin Spencer, Director

CC: Norm Baldwin, P.E., City Engineer, Division Director – Technical Services
Corey Mims, P.E., Senior Public Works Engineer
Phillip Peterson, P.E., Public Works Engineer
Kara Alnasrawi, Director, Business & Workforce Development
Meagan Tuttle, Director, Office of City Planning

Date: June 27, 2023

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JAMES LEAS

Remarks to the TEUC on June 27, 2023

The City of Burlington is the airport proprietor. Federal law and FAA Grant Assurances signed by the city enable municipal airport proprietors to establish non-discriminatory standards so long as they apply to all aircraft using their airport.

Exercising this power to set a non-discriminatory fuel-efficiency standard is the lowest of low-hanging fruit consistent with the city's declaration of a climate emergency: it would ban all gas-guzzling aircraft from BTV, and it would cost the city nothing.

Most commercial passenger airliners get close to 100 passenger-miles per gallon. Some get 120. The F-35 only gets 0.5 passenger-miles per gallon! Most of the luxury private aircraft, the ones that exclusively serve a tiny fraction of the one percent, get between 10 and 45 passenger-miles per gallon.

Burlington can use its airport proprietor authority to establish a minimum passenger-miles per gallon standard or the equivalent in tons-of-cargo-miles per gallon. Setting it at 50 passenger-miles per gallon would cut out the gas-guzzling luxury privates and the climate-killing F-35.

The city also has the power to establish a non-discriminatory standard that requires all aircraft using BTV to meet the already-established FAA aircraft-noise standards. The FAA itself only has authority to require civilian aircraft to meet its noise standard. But the city's airport proprietor authority gives it a power and an obligation the FAA lacks.

Without intending to, the airport is currently applying the FAA noise standard in a grossly discriminatory manner: It allows the F-35 to use the airport for hundreds of training flights each month even though that aircraft wildly exceeds the FAA noise standard that limits the noise of all the civilian aircraft. That is discrimination.

One of the most important purposes of the FAA noise standard—to protect children from damage to their cognitive development—is defeated at BTV because of this blatant invidious discrimination.

The city, however, has the airport-proprietor power to abolish that gross discrimination by establishing a requirement that copies the FAA standard and applies it for all aircraft using BTV with no exclusions or exceptions, including the F-35. I have here a copy of the grant assurances that prove that city-proprietor power.

The Burlington City Government may be unique, or among a select few, in knowing about a severe harm to more than 1000 children and having the power to protect them

from the harm without any cost to the city, and still not using that power.

Under the leadership of this committee, Burlington can do much better. I urge the TEUC to submit draft ordinances to the city council that implement the airport proprietor power to set fuel efficiency and noise standards for the airport that would fix these problems to save planet and children now.

FAA grant assurances

https://www.faa.gov/airports/aip/grant_assurances/media/airport-sponsor-assurances-aip.pdf

22. Economic Nondiscrimination.

h. The sponsor may establish such reasonable, and not unjustly discriminatory, **conditions to be met by all users** of the airport as may be necessary **for the safe** and efficient operation of the airport.

i. **The sponsor may prohibit** or limit any given type, kind or class of aeronautical use of the airport if such action is necessary **for the safe** operation of the airport or necessary to serve the civil aviation needs of the public.

27. Use by Government Aircraft

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft **in common with other aircraft** at all times without charge. . .

THE RELATIVE SIZE OF PARTICLES

From the COVID-19 pandemic to the U.S. West Coast wildfires, some of the biggest threats now are also the most microscopic.

A particle needs to be 10 microns (μm) or less before it can be inhaled into your respiratory tract. But just how small are these specks?

Here's a look at the relative sizes of some familiar particles »

HUMAN HAIR 50-180 μm
FOR SCALE

FINE BEACH SAND 90 μm »

GRAIN OF SALT 60 μm »

WHITE BLOOD CELL 25 μm »

GRAIN OF POLLEN 15 μm »

DUST PARTICLE (PM₁₀) <10 μm »

RED BLOOD CELL 7-8 μm »

RESPIRATORY DROPLETS 5-10 μm »

DUST PARTICLE (PM_{2.5}) 2.5 μm »

BACTERIUM 1-5 μm »

WILDFIRE SMOKE 0.4-0.7 μm »

CORONAVIRUS 0.1-0.5 μm »

T4 BACTERIOPHAGE 0.225 μm »

ZIKA VIRUS 0.045 μm »

Pollen can trigger allergic reactions and hay fever—which 1 in 5 Americans experience every year.
Source: Harvard Health

The visibility limits for what the naked eye can see hovers around 10-40 μm .

Respiratory droplets have the potential to carry smaller particles within them, such as dust or coronavirus.

Wildfire smoke can persist in the air for several days, and even months.

SOURCES: Clearbreath, Daniel Lovatney, EPA, Ruppel, Tweek, News Medical, Science Direct, SCMP, Susan Sakabete, Petrobras, U.S. Dept. of Energy
COLLABORATORS: RESEARCH: Writing: Carsten Aug. van Oort; DESIGN: ART DIRECTION: Harrison Schell

VISUAL
CAPITALIST

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**Vermont Department of Environmental Conservation
Air Pollution Control Division**



MEMORANDUM

To: A2 File
Thru: John Wakefield ☒
From: Brian Monroe ☒
Date: March 16, 2023
Subject: Facility Inspection

I. General Information

1. Facility: Burlington Electric Department
Joseph C. McNeil Generating Station
111 Intervale Road
Burlington, Vermont
2. Date of Inspection: January 11, 2023
This inspection was unannounced.
3. Weather Conditions:

Temperature-	15 °F
Winds -	Light & variable
Sky -	Mostly clear
Precipitation-	None
4. Participants in Inspection:
Ross Predom, Environmental Specialist, Burlington Electric Department
Brian Monroe, Environmental Analyst, VT AQCD
5. Property Access:
Date consent obtained: January 11, 2023
Authorized official giving consent: Ross Predom, Burlington Electric Department
6. Purpose of Inspection:
 - a. To assess adherence with Vermont air pollution control regulations, with emphasis on:

5-211	-	Prohibition of Visible Air Contaminants
5-231(3)	-	Prohibition of Particulate Matter (Combustion Contaminants)
5-231(4)	-	Prohibition of Particulate Matter (Fugitive Particulate Matter)
5-241	-	Prohibition of Nuisance and Odor
5-261	-	Control of Hazardous Air Contaminants
5-501	-	Review of Construction or Modification of Air Contaminant Sources
5-802	-	Requirement of Registration
5-1012	-	Permit Expiration and Renewal

- b. To assess adherence with conditions of Title V Air Pollution Control Permit to Construct and Operate and Acid Rain Phase II Permit #AOP-12-005 dated June 14, 2018.
 - c. Applicable NSPS/NESHAP: NSPS Subpart Da and NESHAP Subpart JJJJJ.
 - d. To investigate complaints: The A2 file indicates there are no recent complaints.
7. Recent Enforcement History:
An NOAV was issued in February 2021 based on this permit review, which found that McNeil had not been recording or maintaining daily ESP records. The NOAV is resolved as of the time of this report.

II. Process Information

The Burlington Electric Department (BED) operates a wood-fired electric power generating station at this location. The McNeil station has a single power boiler and the generator is rated at 55 MW (net). Air pollution sources that are also at this location include a small natural gas-fired boiler used for space heating when the main boiler is shut down, and a small waste oil-fired furnace used to heat an outbuilding.

Air pollutant emissions of concern from this facility consist primarily of products of fuel combustion. Particulate emissions are controlled using an electrostatic precipitator (ESP). Nitrogen oxides are controlled using a regenerative selective catalytic reduction (RSCR) device or low-NOx burners if firing on natural gas or fuel oil. Ammonia emissions from the RSCR are a potential concern, as are fugitive dust and odors from wood fuel storage and handling.

In their most recent annual registration submittal, BED reported using 352,264 tons of wood, 11.1 million cubic feet of natural gas for the main boiler at McNeil Station. An additional 725 gallons of waste oil were consumed by the auxiliary heating units. There are no restrictions on fuel use in their Title V permit.

III. Air Pollution Sources and Emissions

Main Boiler: During the inspection, the main boiler was firing on wood at ~56 MW producing a steam pressure of ~1190 psi. Visible emissions from the main stack appeared to be less than 5% opacity and the COMS opacity reading was close to zero. The cyclone pressure differential was 4.6 in. w.c. and oxygen levels were around 5.7 % during the site visit. The ESP was operating as required within acceptable field amperage and voltage values. The boiler operator's maintenance log appeared to be up-to-date and located in the control room.

Mr. Predom stated there hadn't been any major malfunctions at the plant. He did say that BED had increased efficiency with the cooling towers by installing new fan blades. Maintenance-wise he stated that the RSCR had recently needed more rinsing out due to fine ash accumulation. The

ESP was going to need maintenance at the next shutdown period, which would include replacing warped sheets and wiring.

Mr. Predom indicated that there haven't been any major issues with the COMS or CEMS recently, though the CO monitor at the boiler exhaust has been out since July 2022. BED's permit requires the use of a CO monitor at the boiler exhaust but there is another CO monitor in the stack with the other CEMS equipment that is QA'd through RATAs and daily calibrations (whereas the CO monitor at the boiler exhaust is not). Through internal discussions, it was decided that the requirement was outdated and the permit condition for the CO monitor at the boiler exhaust will be removed from the new permit. All CEMS channels passed the 2022 RATA. BED is also replacing all of their CEMS analyzers this year, which will require re-certification. The plan is to run the current and new equipment concurrently until certification is completed.

BED also conducted a PM emissions test in December 2022. I have reviewed the final test report which indicates McNeil was well under their permit limit for PM emissions.

2. Other Observations: I did not observe any fugitive dust emissions around the wood fuel storage area or ash handling. I detected wood odors around the storage area but did not smell them offsite. Mr. Predom was able to discuss the chip management plan in detail and stated that there have not been any recent complaints associated with dust or odor. Monday through Friday wood chips are delivered by rail lasting for 1-2 hours per day, while 1-2 trailers are delivered by truck every hour.

Besides noting that there were no excessive visible emissions coming from the stacks, we inspected the auxiliary boiler and maintenance shop boiler, which were not running. BED keeps logs for the boiler and furnace that indicate routine maintenance is performed and there have not been any recent malfunctions.

A review of the facility file indicates that McNeil is up-to-date with routine quarterly, semiannual, and annual reporting.

IV. Facility Emissions Summary

The following table is a list of the estimated actual emissions from BED McNeil Station in calendar year 2022. Calculations were performed by AQCD Planning Section personnel and are based on stack test data, AP-42 emission factors, and emissions inventory data provided by BED.

2020 Actual Emissions Estimates	
Total Particulate Matter	1.0 Tons
SO _x	1.2 Tons
NO _x	112.6 Tons
Carbon Monoxide	572.1 Tons
Hydrocarbons/VOCs	12.6 Tons

Sulphur oxide
Nitrogen oxide

An itemized list of HAC emissions and applicable action levels was prepared by the Division for the emissions registration and inventory. Based on data provided by BED, the list indicates that HAC emissions are currently below the applicable action levels except for ammonia. An HMSER review was performed during the review of the application for the current Title V permit.

V. Permit Review

Permit Condition		Comments
(1)	Maintain and operate the Facility in accordance with submitted plans and specifications.	Any known changes to the facility since the permit was issued have been reviewed or do not appear to be significant from an air emissions standpoint.
(2)	ESP control device required.	The ESP is equipped and runs whenever the main boiler operates.
(3)	Limit of 3 fuel oil/natural gas burners. Burners must be low-NOx.	Fuel oil or natural gas was not in use during the inspection. BED personnel said there have not been any significant changes to burner use in the past few years.
(4)	Aux. boilers/waste oil-fired furnace.	No obvious changes. BED personnel said there have not been any changes to this equipment recently.
(5)	Minimum stack height requirement; no obstructions to upward exhaust flow.	Stack heights appear to meet permit specifications.
(6)	Wood fuel requirements.	Only natural wood is burned at the facility. Mr. Predom was able to explain the wood chip management plan in detail.
(7)	Limit on fuel oil sulfur content.	Delivery invoices indicate ULSD is used.
(8)	Comply with NESHAP JJJJJ.	Notifications have been submitted and tune-ups are performed.
(9)	Requirements for large (450+ bhp) stationary engines.	No new large engines have been installed since the last permit review.
(10)	Open burning limitations.	No evidence of open burning was observed during the site inspection.
(11)	PM emission limits.	Biannual compliance testing results have been well under permit limits.
(12)	NO _x emission limits.	CEMS data indicates that NO _x concentrations are normally well below permit limits.
(13)	CO emissions/good combustion requirement.	BED has reported slight exceedances in the past but normally operate well below permit limits. The CO

Permit Condition		Comments
		monitor in the CEMS stack is used now instead of one at the boiler exhaust.
(14)	SO ₂ emission limits.	BED is assumed to be well below permit limits due to fuel types used.
(15)	NH ₃ emission limit.	There have been slight exceedances in the past but concentrations are normally well below permit limits.
(16)	Visible emissions (facility wide).	I did not observe any excessive visible emissions during the inspection.
(17)	VOC emission limit of 50 tons/year.	McNeil emitted approximately 13 tons in 2022.
(18)	HAP emissions not over 10/25 TPY limits.	Emissions inventory data submitted by BED indicates HAP emissions were in compliance in 2022.
(19)	HAC emissions under A.L. or reviewed.	Emissions inventory data submitted by BED indicates HAC emissions were in compliance in 2022.
(20)	Fugitive emissions (facility wide).	No excessive visible emissions were observed during the site inspection.
(21)	Public nuisance and objectionable odor prohibited.	I did not detect any odors off the property and the AQCD has not received any recent complaints.
(22)	PM compliance testing.	Testing was conducted in 2022.
(23)	Compliance Assurance Monitoring (CAM) for opacity.	There have been no recent deviations or exceedances.
(24)	Continuous emissions monitoring system (CEMS) and quarterly reporting.	Reports are up to date and CEMS operational.
(25)	Maintain fuel records.	Submitted quarterly with the CEMS report.
(26)	Records of fuel oil sulfur content.	Maintained at facility in form of delivery invoices.
(27)	Records of compliance testing.	Maintained onsite and submitted to AQCD.
(28)	Records of start-up/shut-down/malfunctions of main boiler, emission controls, or CEMS.	Appears to be included in quarterly reports. No significant malfunctions reported recently.
(29)	Notify Agency of any violations, of which it is aware, within 10 days.	McNeil has notified the AQCD of potential violations in a timely fashion.
(30)	Records shall be retained for at least 5 years and made available on request.	Standard administrative requirements may not be verified during inspections. No requests for older records have been made.
(31)	Notify Agency of proposed physical or operational	The Agency has not received any such notifications, but no proposed changes requiring notification are known.

Permit Condition		Comments
	changes that would increase emissions.	
(32)	Submit certification of compliance with Title V permit.	Certification for 2022 has been received.
(33)	Submit annual source registration and fee.	BED has registered this facility with the Agency for 2023.
(34)	Send everything to the right place.	BED appears to know where to send things.
(35)	Permit shield designation.	Not much to say here.
(36) Thru (47)	Acid rain requirements.	McNeil is up to date with reporting.
(48) Thru (64)	Standard conditions.	These permit conditions pertain generally to standard administrative requirements, and were not evaluated during this site visit. Permit renewal is up to date.

VI. Areas of Concern

There are no areas of concern at the time of this report based on the site inspection and file review.

Unless otherwise noted, this report describes conditions at the facility/property as observed by the AQCD inspector, and/or through records provided to and/or information reported to the AQCD inspector by facility representatives and as understood by the inspector. This report may not capture all operations or activities ongoing at the time of the inspection. This report does not make final determinations on potential areas of concern. Nothing in this report affects AQCD's authorities under statutes and regulations to pursue further investigation or action.

From: Katelyn Jetelina from Your Local Epidemiologist yourlocalepidemiologist@substack.com
Subject: Wildfire smoke, COVID-19, and striking comparisons
Date: June 9, 2023 at 8:01 AM
To: khmarcy@comcast.net

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Si quiere leer la versión en español, pulse aquí.

Wildfire smoke, COVID-19, and striking comparisons

KATELYN JETELINA

JUN 9



SHARE

Watching wildfire smoke blanket the Northeast U.S. and parts of Canada over the past few days has been surreal. Air quality is impacted for tens of millions of people, with off the charts pollutant levels in some areas.

Hourly PM2.5 measurements (in $\mu\text{g}/\text{m}^3$) | NAAQS 24-hour PM2.5 standard (35

$\mu\text{g}/\text{m}^3$)

900

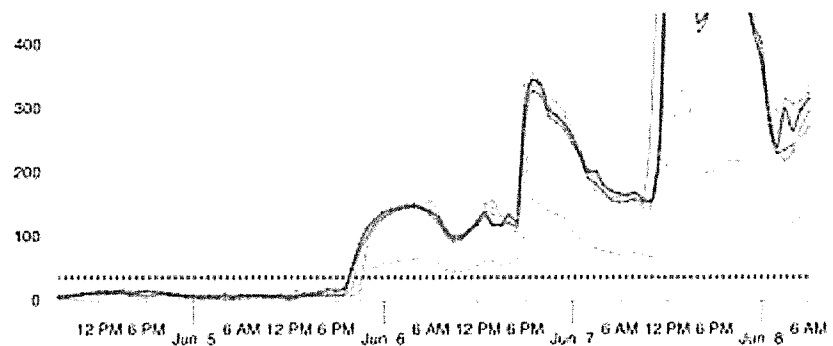
800

700

600

500





New York City PM2.5 measurements. Red dotted line indicates unhealthy levels

I can't help but notice striking comparisons with this public health problem to another— the pandemic.

Oh ...those things called masks

Given wildfire smoke *and* respiratory droplets are larger than N95's filtration efficiencies, this means masks work for both.



I've heard that more people are wearing masks in the past two days than I did last winter when COVID, RSV, and flu blanketed communities. I chalk this up to three things:

1. **Visible vs. invisible threats.** When something is invisible, it's much more difficult to act. This has long been a menace to public health. *Would masking during winter be different if viruses created green plumes of smoke?* Tools that make viruses as visible as smoke, like perhaps a viral load indicator on weather apps, could be low-hanging fruit.
2. **Immediate vs delayed effect.** Symptoms from smoke are pretty immediate (i.e., watery eyes, coughing). Symptoms from viruses are delayed (takes a few days to replicate in your body). And, in some cases, the immune system will prevent infection or symptoms altogether. So, the causal relationship is less apparent to people.
3. **Novel vs. familiar threat.** COVID-19 is not novel anymore; the majority of people have become more comfortable placing its risk among our normal repertoire of threats. Wildfire smoke in the Northeast is novel. *Would the same number of people be wearing a mask after 3.5 years of wildfire smoke?*

Politicization is on full display... again

It didn't take long for the politicization of public health and climate change to be on full display with wildfire smoke. Just like with the pandemic, this is gravely dangerous to the health of communities.

One national news station pushed the idea that there are no health harms with wildfire smoke and masks don't work. That's just plain wrong. As one epidemiologist said during the pandemic, "Politicizing masks makes as much sense as politicizing gravity."

Risk communication is key

Clear, timely risk communication is important so people can make evidence-based decisions *today*. We did this terribly during the pandemic. It was better with smoke.

With a novel threat, like wildfire smoke, it's best to compare to harms we do know—like cigarettes. This helps gauge risk more accurately. For example, thanks to data from Berkeley Earth, I found breathing in excessive amounts of wildfire smoke (rated “purple” on the Air Quality Index scale) is equivalent to smoking half a pack of cigarettes. *Time to wear that mask?*

How does air quality correspond to smoking cigarettes?

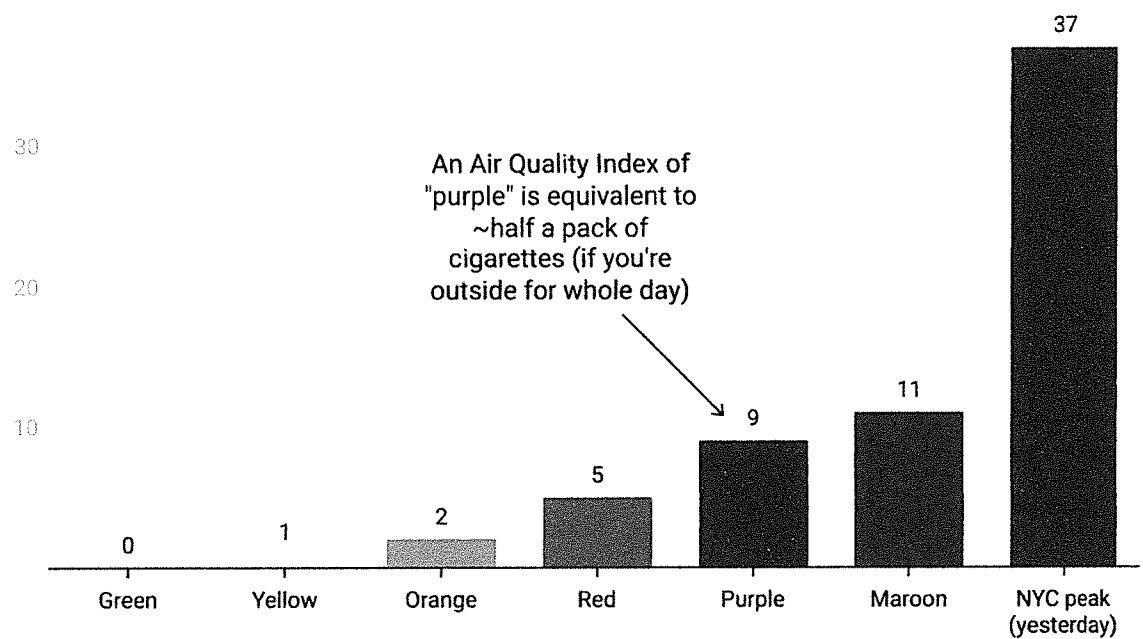


Chart: Katelyn Jetelina/YLE • Source: Berkeley Earth • Created with Datawrapper

Signs of climate change

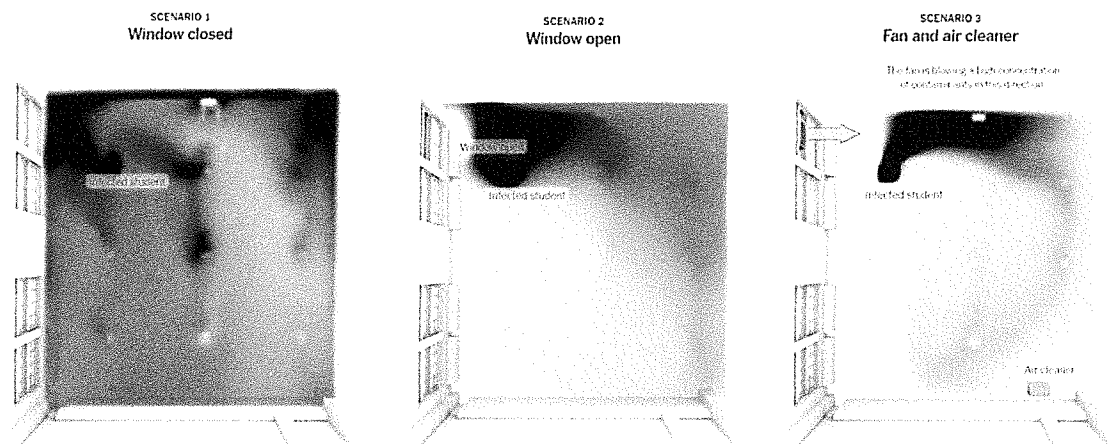
Contrary to a few nasty emails I received after my last post, yes... climate change is a problem. Both viruses and wildfires put this on full display:

- **Smoke:** An estimated 82 million Americans will experience a 57% increase in frequency and a 31% increase in the intensity of “smoke waves”—2 or more consecutive days with high wildfire-specific PM_{2.5}—in years to come. Northern California, Western Oregon, and the Great Plains will suffer the most.
- **Viruses:** Climate change is increasing the transmission of viruses. Animals and humans are moving to higher elevations, different

Animals and humans are moving to higher elevations, different biodiversity hotspots, and areas previously uninhabited. For example, mosquitos are migrating to new areas and, thus, introducing diseases to previously protected populations.

Importance of indoor air quality

Both events show that improving indoor air is a powerful mitigation tool that has been underutilized for decades. In addition, some of the best public health interventions are those happening in the background: institutional interventions that work passively and invisibly for the individual. Addressing indoor air in an equitable way is a massive challenge, and I hope we improve with time.



NYT visual depiction of SARS-CoV-2 and the impact from opening windows and air cleaners.

Bottom line

We need to be smarter and better adapt because the environment around us is rapidly changing. Our health depends on it, whether the threat comes from wildfires or viruses.

Love, YLE

“Your Local Epidemiologist (YLE)” is written by Dr. Katelyn Jetelina, MPH PhD—an epidemiologist, data scientist, wife, and mom of two little girls. During the day she works at a nonpartisan health policy think tank and is a senior scientific consultant to a number of organizations, including the CDC. At night she writes this newsletter. Her main goal is to “translate” the ever-evolving public health science so that people will be well-equipped to make evidence-based decisions. This newsletter is free thanks to the generous support of fellow YLE community members. To support this effort, subscribe below:

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Transportation, Energy and Utilities Committee of the City Council
Tuesday June 27, 2023 – Immediately following the Vehicle for Hire Licensing Board Meeting at 5PM

DPW Front Conference Room
645 Pine St, Burlington, VT 05482

–DRAFT MINUTES–

VFH board adjourns 5:59PM. TEUC begins 5:59PM

1. Agenda

Councilor Bergman moves to amend the agenda by adding 5.5 McNeil Next Steps item. Seconded by Councilor King. All in favor. Passes unanimously.

2. Minutes of [5.23.23](#) and [6.13.23](#)

Councilor Bergman moves to approve the minutes. Seconded by Councilor King. All in favor. Passes unanimously.

3. Public Forum

Kim Hornung-Marcy – Speak against expansion of McNeil Plant. Speaks to emissions of particulate matter and health impacts. Emissions impact low-income neighborhood. **(See attachment)**

Steve Goodkind – Concerned with McNeil emissions. McNeil should be phased out.

Catherine Bock – Speak to resolution on VTANG carbon emissions - Grounding F35 and reporting on emissions. McNeil steam pipeline could prolong life of plant and keep wood plant in operation.

Dan Castrigono – McNeil – need a phase out plan not more invested. Burlington Net Zero road map needs to consider Airport and McNeil. Encourage you to adopt resolution. Need degrowth at airport.

Jack Hanson – Renewable heating ordinance. Cambridge MA took a step to regulate eliminating fossil fuel use by 2025. We need a framework in place now. Airport is huge source of emissions. Need more accountability for City within resolution as owner of airport - follow up items for City if these entities ignore resolution.

Pike Porter – VTANG resolution is a first step. Airport emissions need to be counted and emissions need to be reduced. Need to ask VTANG for nonflying mission. Don't need fire services from VTANG. We need planning to phase out McNeil and have clean energy.

Colin Larson – Global Warming Solutions Act target is 2025. We are not on target. Airport and McNeil need to be properly accounted and addressed.

Connor Wertz, Ward 2 – Next steps – Commission study to see what it looks like and how long it would take to replace McNeil. Support VTANG resolution.

James Leas – City of Burlington owns airport. There are ways for the City to govern what happens here and emissions. Noise and emissions of F35s is an issue. **(See attachment)**

Benjamin Quitner – McNeil and Airport have impacts that affect peoples' health.

Ashley Adams – Support VTANG resolution. Airport and McNeil emissions need to be counted and addressed. Non flying mission for F35s.

Peter Duval – Modern roundabouts are safety measure and better for emissions. We should not be planning new signalized intersections for Champlain Parkway. McNeil has environmental impacts.

Cheryl Joy Lipton, Chester resident – Support VTANG resolution. Biodiversity crisis - McNeil burning wood impacts environments.

Public comment ends 7:00PM

4. N Winooski Ave Update

- Chapin Spencer
- [Memorandum](#)

Chapin Spencer – Provides overview of memo. Paving scheduled for week of 16th

Councilor Gene Bergman – Need a baseline before changes so we can see how things are going after. Need to know what is happening with parking before changes. Would like quarterly parking counts following implementation. Stakeholder survey 6 months out is too long to wait. Would like to extend reduction in parking violation fees to be pushed back to September if there are a lot of warnings. Late August students move back into Ward 2.

Chair Mark Barlow – Confirm Oops program applies to time limited spaces - could be helpful tool to allow smooth transition.

Who is considered adjacent stakeholder? Parking impacts will cause ripple effects into adjacent streets.

CS – Two tiers, direct street residents and then survey for adjacent streets to be considered.

MB – Would like to see survey before it goes out.

GB – Update with CHT?

CS – Worked with them on parking plan, can engage them as part of stakeholder survey.

Item closes at 7:17PM

Chapin notes that Item 9, walking tour is postponed.

5. Resolution on VTANG Carbon Emission – referred to TEUC on 12/6/22

- Councilors
- [Resolution](#)

Councilor Bergman and King vote to move Resolution to City Council. Councilor Barlow votes against.

Councilors move to get legal option from Airport council and Director on recommendations and remarks from James Leas tonight. Passes unanimously.

Item closes at 7:27PM

5.5 McNeil Next Steps

Chair Mark Barlow - Had an offer from Joe Nelson to provide tours (5-10 people) of those areas being managed and sending wood to McNeil. Would do multiple smaller groups. Would like to do this individually as to not form a quorum. Will engage with Joe on times.

Councilor Gene Bergman – Need to have conversation at TEUC to talk about District Energy.

MB - I have additional questions and would like to dig into this more. If not McNeil than what else. McNeil life cycle. More independent expertise.

GB – Think we need a bigger room so this could be at BED. Medical center or UVM – have they explored geothermal as an alternative to steam pipe?

MB – Hold some agenda planning sessions outside meeting to talk about future meeting discussions. Will find out BED's council schedule.

Item ends 7:52PM

6. Director's Report

Chapin Spencer – Goals and objectives for Director and City Engineer is posted on commission website. Open to feedback.

July 1 requires toters, renters or landlords can purchase these.

GMT transit financing efforts is ongoing. Driver shortage impacts routes. Collecting fares as of Jan 1.

Bikeshare – launch Thursday. 200 bikes.

Item closes 7:57PM

7. Councilors' Update

Councilor Bergman – Met South Burl City Councilor to ask if he could come here to share experience regarding solar ordinance they just passed in building code. **July or August meeting** with hope to come up with ordinance. Would be good to have someone from Permitting and Inspections to comment.

McNeil – Want to discuss solar on old city dump. Darren Springer, Cindi White, Chapin Spencer present to talk.

Chair Barlow – digging into electricity generation. Books: 'Shorting the Grid' and 'No Miracles Needed'

Item closes 8:02PM

8. Next Meeting 7/25/23

9. Champlain Parkway Walkthrough

- Chapin Spencer, Norm Baldwin

Chapin Spencer canceled walkthrough due to timing.

Gives overview of construction progress, traffic impacts, outreach - public meeting in July.

Railyard enterprise is working through NEPA process. Preferred alternative support from FHWA in October is expected.

10. Adjourn

Meeting adjourns 8:08PM.