2023 Climate Strategy Report

N.C. Department of Information Technology

September 2023

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Introduction

About N.C. Department of Information Technology

The N.C. Department of Information Technology (NCDIT) oversees and provides IT services to state agencies, local governments, and educational institutions across North Carolina. The department was established as a cabinet-level agency in 2015 to consolidate enterprise information technology functions within the executive branch. A full list of the powers and duties of the department can be found in General Statute Chapter 143B, Article 15. The department is dedicated to transforming our shared IT services by adopting modern technology solutions and improving communications and collaboration platforms to meet our customers' needs while effectively managing risks and security.

N.C. Department of Information Technology's Vulnerabilities to Climate Change

IT systems are vulnerable to climate changes as weather patterns change, with wind and flooding events already increasing and predicted to keep doing so in the coming years. IT engineers must now take into consideration the possible effects of climate change within their architecture designs, as IT systems not designed within an environment architecture that protects against these new threats can be especially vulnerable to these threats. NCDIT system architecture/cyber engineers continually evaluate the physical and virtual environments of all state IT resources to mitigate climate change impacts on these state assets.

N.C. Department of Information Technology's Approach to Fulfilling the Strategies in the Climate Risk Assessment and Resilience Plan

NCDIT has approached this strategy in two ways. First, internally, we are improving and modernizing our information technology and data center services and increasing their resiliency against weather and climate changes as these threats grow. The second strategy is externally promoting climate risk and resilience information to our state county, and local government agencies. We do so by expanding our documents to include these risks and responsibilities, as well as assigning roles and responsibilities within our organization. As our organization's understanding of roles and responsibilities matures, our internal staff can participate in a more informed way, and we can engage our external partners in these strategies.

NCDIT will continue to develop impactful policies, expand our outreach to external partners, develop future budgets to include strategies for improving our climate change mitigation and build a stronger resilience plan within the next 24 months.

Reducing Energy Use

Tony Brackett, NCDIT facilities manager, has been acting as the energy manager since January 2019 and has been monitoring the Western Data Center's utilities for many years. The accomplishments made under Brackett's leadership include:

- Reduced BTUs per square foot by 13% since 2018/19.
- Installed LED lighting in both the Eastern Data Center and the Western Data Center. Added motion sensors.
- Installed plug-and-play T8 bulbs at the Western Data Center and replaced very old fluorescents at the Eastern Data Center with new LED fixtures.
- Reduced generator test run time at both data centers.
- Raised the Western Data Center room temperature from 60 degrees to 68 degrees.
- Assessed conditions at the Western Data Center and identified a number of fans and cooling units that can be shut down and put into a rotation.
- Conducted an electrical study to determine the power needs of the Eastern Data Center. When the project is completed, we will be able to better monitor consumption and locate areas to improve.
- Scheduled off-shift setbacks using the building management system (BMS) to reduce the heating and cooling load.

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- Reduced water consumption by identifying and capping leaks from aging underground piping.
- Installing new smart power bars in data centers additions and replacing old power bars as needed with smart bars.

NCDIT continues to reduce internal environmental impacts by improving energy efficiency in our Eastern Data Center (EDC) and Western Data Center (WDC) facilities and within our Raleigh headquarters. This is being accomplished by implementing additional monitoring tools and augmenting manual processes already in place. Our organization is investing in improving our existing data center monitoring tools, including replacing existing analog reporting systems for our facility reporting activities.

Addressing Environmental Injustices and Inequities

Chief Operating Officer Torre Jessup serves as NCDIT's environmental justice lead. NCDIT aims to expand broadband access and affordability and digital literacy and equity among low- and moderate-income communities, indigenous communities, and communities of color through the Division of Broadband and Digital Equity. In particular, the division promotes local collaborations to increase enrollment in the federal Affordable Connectivity Program, which helps households afford their monthly internet bill and purchase devices. To date, more than 850,000 households across North Carolina have enrolled in the

program. While not directly aimed at climate resilience, these programs open up new ways of working and learning that have lesser environmental impacts, such as reducing commuting and paper use.

Annette Taylor, director of NCDIT's Office of Digital Equity and Literacy, also serves on the Andrea Harris Equity Task Force and advances issues of digital equity and the digital divide in the task force's work to create economic stability in disadvantaged communities, improve health and wellness in underserved areas and achieve environmental justice.

Public Participation Plan

NCDIT recognizes that all the people of North Carolina have the right to access government services, meaningfully contribute to government decisions and share equitably in the benefits of a prosperous North Carolina. As a state agency, NCDIT plays a central role in fostering a culture that leverages technology for an equitable, prosperous, healthier, and educated North Carolina and enables trusted business-driven solutions that meet the needs of the public.

We acknowledge that there is more to be done to reach communities across the state who might be unaware of and underserved by the department's programs. This includes communities of color, Indigenous communities and low- and moderate-income communities. Consequently, it is necessary for these communities to be more meaningfully engaged as partners and stakeholders in government decision-making.

At the same time, building a more inclusive society affects and requires the participation of all North Carolinians. We are in have development of a Public Access and Participation Plan" to better understand where gaps exist and encourage greater participation across the state in all areas of our programs and operations.

1.0. Reduce greenhouse gas emissions.

1.1 Reduce energy consumption per square foot in state-owned buildings by at least 40% from fiscal year 2002-2003 levels.

1.1.1 Install a third chiller at the Western Data Center	In Progress
Expected Completion Date: February 2024 A new chiller with a variable speed drive is expected to be 10% more efficient than what we currently have at the Western Data Center. It will also add redundancy to improve resiliency. Funding is in place through repair and renovation (R&R) funds, and a designer has been selected and is currently working on the design proposal. We can move forward with the design contract when we receive and approve the proposal. Design work has been completed and chiller installation has been bid. Depending on equipment lead times, we should be ahead of our original completion date.	

1.1.2 Upgrade and expand the Eastern Data Center's electrical system	In Progress
Expected Completion Date: Spring 2024 Though not specifically designed for energy efficiency, this project will include energy monitoring and newer, more efficient equipment. The monitoring capabilities will enable better tracking and improve our ability to identify high-use areas. The replacement of obsolete components and equipment will improve reliability and resilience. The first phase of the electrical upgrades has been bid and we have made the recommendation to the State Construction Office to award the contract. Depending on State Construction Office contract approval and equipment lead times, we anticipate completing this phase by spring/summer 2024.	

1.1.3 Refresh the uninterruptible power supply systems at the Western Data Center	Planned
Expected Completion Date: Spring 2025 While the current uninterruptible power supply (UPS) system units at the Western Data Center are 85% efficient, the new units will be 97% efficient. The project has been funded through repair and renovation (R&R) funds and is in the design phase. It is on track to be installed sooner than expected, depending on equipment lead times.	

1.2 Support the use and expansion of energy efficient and clean energy resources.

This section is not applicable.

1.3 Increase the number of registered Zero Emission Vehicles to at least 1,250,000 by 2030 so that 50% of in-state sales of new vehicles are zero-emission by 2030.

This section is not applicable.

1.4 Prioritize Zero Emission Vehicles (ZEVs) in the purchase or lease of new vehicles and for agency business travel.

1.4.1 Install electric vehicle chargers at the Eastern and Western Data Centers	In Progress
Expected Completion Date: December 2024 at the Eastern Data Center	
Two electric vehicle chargers have been installed at the Western Data Center, and we are working on a design contract for the Eastern Data Center. We have applied for additional funding through the N.C. Department of Environmental Quality's Volkswagen settlement grant program.	

1.4.2 Replace internal combustion engine vehicles with electric vehicles where feasible	Planned
Expected Completion Date: Beginning in winter 2024.	
The current vehicle fleet and vehicle use are being evaluated for possible replacement with electric vehicles.	
NCDIT plans to replace the existing mail van with an electric vehicle after chargers are installed at the Eastern Data Center.	

1.5 Initiate other initiatives to decarbonize the transportation sector.

1.5.1 Use hybrid vehicles where electric vehicles are not currently feasible	In Progress
Expected Completion Date: Ongoing as vehicles are replaced.	
As vehicles are replaced, we are emphasizing the need to use hybrid vehicles if electric vehicles are not feasible. We added one hybrid vehicle to our fleet this past year.	

1.6 Initiate other projects aimed at reducing statewide greenhouse emissions.

1.6.1 Develop increased use of cutting-edge information and communication technologies (ICT) to reduce annual greenhouse gas emissions	Planned

The Organization for Economic Co-operation and Development (OECD) Climate Group recommends the use of information and communication technologies (ICT) in smart buildings, smart electricity grids and smart transport and logistics, which can reduce greenhouse gas emissions by 15%. We are identifying possible initiatives based on the available funding and in collaboration with other state agencies that could benefit by increasing ICT use.

We will continue to investigate opportunities to increase the use of ICT and identify possibilities to do so in coordination with other state agencies over the next 12 months.

1.6.2 Reduction in Commuting Miles	Ongoing

Based on a survey conducted in July 2022, NCDIT's remote work program has resulted in a 79.3% reduction in weekly commuting miles of state employees working for the agency. Prior to the implementation of our current remote work program, NCDIT employees were commuting approximately 191,972 miles weekly. Currently, NCDIT employees are commuting 39,762 miles weekly. Our approach to remote work has allowed us to surpass the 20% goal set forth by the Air Quality Improvement Act without an adverse impact on our agency's work productivity.

1.6.3 Reduce Paper Processing and Printing	Ongoing

Expected Completion Date: Ongoing

NCDIT has successfully reduced paper processing by promoting electronic reporting and distribution to state agencies. After meeting with state agencies about their individual paper reporting requirements, NCDIT has been able to reduce over 90 percent of paper production for those agencies.

2.0. Increase statewide resilience to the impacts of climate change.

2.1 Evaluate the impacts of climate change on cabinet agencies' programs and operations.

2.1.1 Prevent data center outages due to weather and other natural disasters	Ongoing
Expected Completion Date: Ongoing We maintain all the critical data center infrastructure, generators, uninterruptible power supply (UPS), heating, ventilation, and air conditioning (HVAC) and fire systems to the manufacturers' recommended standards. Electrical upgrades at the Eastern Data Center, along with new uninterruptable power supply (UPS) systems and chillers at the Western Data Center will add redundancy and capacity that will increase our resiliency in all types of weather conditions.	
2.1.2 Add an emergency water supply reservoir for the Eastern Data Center cooling towers	Planned
Expected Completion Date: To Be Determined A loss of city water for 6-8 hours at the Eastern Data Center would cause a complete shutdown of the cooling system. A 20,000 gallon or larger reservoir would sustain the Eastern Data Center for several days. We will determine the cost of the reservoir and find funding.	
2.1.3 Develop Construction Standards in reference to EO 266 in protecting Information Technology Systems against climate impacts.	Planned
Expected Completion Date: To Be Determined We plan to develop specific state construction guidelines and standards for design and placement of information technology systems in support of state, county, and tribal areas. This would be an additional requirement with respect to the EO 266 to ensure funding can assist in addressing new construction requirements, as well addressing placement and modification of existing information technology systems.	

2.2 Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations.

2.2.1 **Develop internal presentations to inform and educate IT leaders on minimizing climate change impacts**	**Planned**
Expected Completion Date: Ongoing, 2022-2025 This initiative involves collaborating on ideas and solutions to assist NCDIT leaders in evaluating possible solutions to minimize climate change impacts on their IT systems and to ensure that their IT resources are available when needed, including when exposed to weather events and other possible vulnerabilities. NCDIT has provided informational updates during internal meetings as well as meetings and town halls with local and county governments over the last 12 months and will continue to share information related to climate change impacts on IT systems and programs.	

2.3 Assist the communities served by each cabinet agency to implement climate change adaptation practices and resiliency planning.

2.3.1 Send teams to meet with county, city, and town IT leaders to brainstorm ideas for improving and adapting resiliency planning ideas	**In Progress**
Expected Completion Date: 2022-2025 This initiative involves collaborating on ideas and solutions to assist county, city, and town IT leaders in evaluating possible solutions to minimize climate change impacts on their IT systems and to ensure that their IT resources are available when needed, including when exposed to weather events and other possible vulnerabilities. NCDIT has hired a business relationship manager to serve as a point of contact for local governments and work with them to provide solutions for business needs. NCDIT also has started hosting quarterly town halls specifically for local and county governments to provide pertinent information to them and answer questions. In addition, staff continues to attend the biannual meetings of the N.C. Local Government Information Systems Association (NCLGISA) and identify counties that wish to participate in this initiative.	

3.0. Address the public health impacts of climate change.

3.1 Increase understanding and awareness of the health impacts of climate change.

This section is not applicable.

3.2 Advance health equity

The NC Health Information Exchange Authority, part of NCDIT's Data Division, enables secure access to a web-based clinical viewer to participate with providers statewide, no matter their location or their technology. This means that providers, who have completed the necessary governance process with the State of North Carolina, and who have internet access can view a patient's longitudinal health record across disparate care settings, providing they have a treatment relationship with that patient. The number of portal accounts has grown to 10,348, an increase of almost 3,000 users in the past year. This secure access supports the state's efforts to improve data sharing for citizens and can help improve the quality of care and ultimately lower the cost of care when costly duplicative tests and procedures can be reduced.

3.3 Initiate other projects aimed at addressing the public health impacts of climate change.

This section is not applicable.

4.0. Invest in historically underserved communities.

4.1 Increase affordability for low- and moderate-income households.

4.1.1 Provide technology assets to Kramden Institute to help bridge the digital divide	Ongoing
Expected Completion Date: Continuous NCDIT partners with the nonprofit Kramden Institute, which, since 2014, has offered educational programs to help teach people how to use computer technology for the first time. In addition to teaching basic computer skills, the organization offers numerous STEAM camps and after-school programs for youth across the Triangle region with. For Kramden, NCDIT provides staff volunteers and older information technology equipment that is refurbished through e-waste recycling services. During the next 12 months, NCDIT will continue to support this program, which has already supported deserving students and their families across 83 of North Carolina's 100 counties.	
4.1.2 Promote the Affordable Connectivity Program	In Progress
Expected Completion Date: Ongoing NCDIT promotes the federal Affordable Connectivity Program to make access to internet services affordable for families with incomes at or below 200% of federal poverty guidelines. This includes families in certain assistance programs including SNAP, Medicaid, Federal Public Housing Assistance, SSI, WIC, and Lifeline. This program provides $30 a month on internet services, up to $75 a month for households on tribal lands and a $100 discount for laptops, computers or tablets bought through participating providers. NCDIT will continue to promote this program through outreach with local partners during the next 12 months.	

4.2 Create jobs and economic growth.

This section is not applicable.

4.3 Alert residents and businesses, particularly those in underserved communities, to state and federal grant opportunities.

This section is not applicable.