



NORTH CAROLINA
DEPARTMENT OF
INFORMATION
TECHNOLOGY

2022 Climate Strategy Report

N.C. Department of Information Technology

October 15, 2022

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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 sq ft 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.

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. 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 the 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 has the role to foster 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 have developed [a draft "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.

<https://it.nc.gov/news-events/public-access-participation-plan>

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

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| <p>1.1.1 Install a third chiller at the Western Data Center</p> | <p>In Progress</p> |
| <p>Expected Completion Date: February 2024</p> <p>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.</p> <p>We plan to get the design work completed and bid the chiller as soon as possible. The current lead time for a new chiller is 10 to 11 months.</p> | |
| <p>1.1.2 Upgrade and expand the Eastern Data Center’s electrical system</p> | <p>In Progress</p> |
| <p>Expected Completion Date: Spring 2024</p> <p>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.</p> <p>Within the next 12 months, 50% of this project will be accomplished, allowing for more efficient provision of electrical power support for the agency’s IT systems and applications. This improvement will allow energy resource management to provide the most efficient capability for individual system requirements.</p> | |
| <p>1.1.3 Refresh the uninterruptible power supply systems at the Western Data Center</p> | <p>Planning</p> |
| <p>Expected Completion Date: Spring 2025</p> <p>While the current uninterruptible power supply (UPS) system units at the Western Data Center are 85% efficient, the new units will be 97% efficient. Repair and renovation (R&R) funds have been requested and are expected to be approved for the 2023-2024 year.</p> <p>A public posting for a designer will be the next step when funding is approved.</p> | |

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

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| <p>1.4.1 Install electric vehicle chargers at the Eastern and Western Data Centers</p> | <p>In Progress</p> |
| <p>Expected Completion Date: October 2022 at the Western Data Center, winter 2024 at the Eastern Data Center</p> <p>At the Western Data Center, internal buildings’ inside conduits have been run, and trenches have been dug outside. Conduits will be installed, and wire run while electrical inspection and installation of the chargers will also be conducted.</p> <p>Cost estimates for the Eastern Data Center will be completed, and funding will then be secured.</p> | |
| <p>1.4.2 Replace internal combustion engine vehicles with electric vehicles where feasible</p> | <p>Planning</p> |
| <p>Expected Completion Date: Beginning in winter 2024</p> <p>The current vehicle fleet and vehicle use are being evaluated for possible replacement with electronic vehicles.</p> <p>NCDIT will develop a plan for when electric vehicle chargers are installed at the Eastern Data Center.</p> | |

1.5 Initiate other initiatives to decarbonize the transportation sector

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| <p>1.5.1 Use hybrid vehicles where electric vehicles are not currently feasible</p> | <p>In progress</p> |
| <p>Expected Completion Date: Ongoing as vehicles are replaced</p> | |

As vehicles are replaced, we are emphasizing the need to use hybrid vehicles if electric vehicles are not feasible.

We will add at least one hybrid vehicle to the fleet this year.

1.6 Initiate other projects aimed at reducing statewide greenhouse emissions

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| <p>1.6.1 Develop increased use of cutting-edge information and communication technologies (ICT) to reduce annual greenhouse gas emissions</p> | <p>Planning</p> |
| <p>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 slash greenhouse gas emissions by 15 percent. We are identifying possible initiatives based on the available funding and in collaboration with other state agencies that could benefit by increasing ICT use.</p> <p>We will investigate opportunities to increase use of ICT and identify possibilities to do so in coordination with other state agencies over the next 12 months.</p> | |
| <p>1.6.2 Reduce Paper Processing and Printing</p> | <p>Ongoing</p> |
| <p>Expected Completion Date: Ongoing</p> <p>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.</p> | |

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

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| <p>2.1.1 Prevent data center outages due to weather and other natural disasters</p> | <p>Ongoing</p> |
| <p>Expected Completion Date: Ongoing</p> <p>We are maintaining 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.</p> <p>We will update the Eastern Data Center's equipment maintenance program to ensure better record keeping, scheduling and contract management.</p> | |
| <p>2.1.2 Add an emergency water supply reservoir for the Eastern Data Center cooling towers</p> | <p>Planning</p> |
| <p>Expected Completion Date: Spring 2024</p> <p>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.</p> <p>We will determine the cost of the reservoir and find funding.</p> | |

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

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| <p>2.2.1 Develop internal presentations to inform and educate IT leaders on minimizing climate change impacts</p> | <p>Planning</p> |
| <p>Expected Completion Date: Ongoing, 2022-2025</p> <p>This initiative involves collaborating on ideas and solutions to assist N.C. Department of Information Technology 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.</p> <p>During the next 12 months, we will provide informational updates during internal meetings.</p> | |

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

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| 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 |
| <p>Expected Completion Date: 2022-2025</p> <p>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.</p> <p>During the next 12 months, DIT staff will attend the biannual meeting of the N.C. Local Government Information Systems Association (NCLGISA) and identify counties that wish to participate in this initiative.</p> | |

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

This section is not applicable.

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

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| <p>4.1.1 Provide technology assets to Kramden Institute to help bridge the digital divide</p> | <p>Ongoing</p> |
| <p>Expected Completion Date: Continuous</p> <p>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.</p> <p>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.</p> | |
| <p>4.1.2 Promote the Affordable Connectivity Program</p> | <p>In Progress</p> |
| <p>Expected Completion Date: Year 2022-2023</p> <p>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.</p> <p>NCDIT will continue to promote this program through outreach with local partners during the next 12 months.</p> | |

4.2 Create jobs and economic growth

This section is not applicable.

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

This section is not applicable.