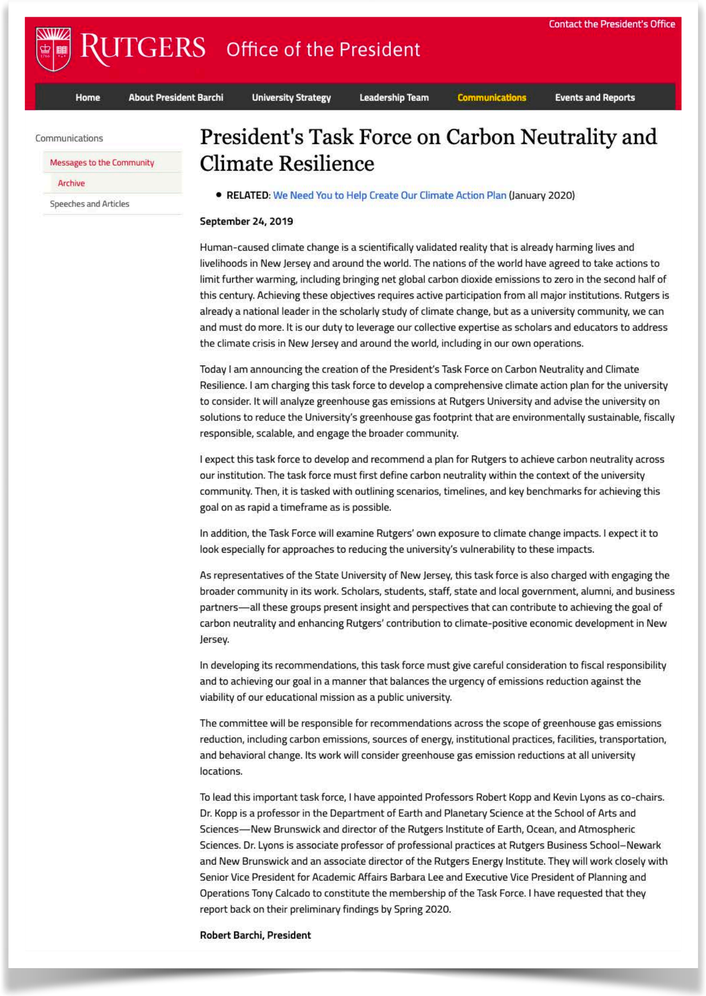
RUTGERS
Office of the President
TASK FORCE ON CARBON NEUTRALITY
AND CLIMATE RESILIENCE

Current Status and Potential Solutions for a Carbon Neutral, Climate Resilient Rutgers

Prof. Robert Kopp and Prof. Kevin Lyons, co-chairs

President's Task Force on Carbon Neutrality and Climate Resilience

April 27, 2021



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President's Task Force on Carbon Neutrality and Climate Resilience

- **RELATED:** We Need You to Help Create Our Climate Action Plan (January 2020)

September 24, 2019

Human-caused climate change is a scientifically validated reality that is already harming lives and livelihoods in New Jersey and around the world. The nations of the world have agreed to take actions to limit further warming, including bringing net global carbon dioxide emissions to zero in the second half of this century. Achieving these objectives requires active participation from all major institutions. Rutgers is already a national leader in the scholarly study of climate change, but as a university community, we can and must do more. It is our duty to leverage our collective expertise as scholars and educators to address the climate crisis in New Jersey and around the world, including in our own operations.

Today I am announcing the creation of the President's Task Force on Carbon Neutrality and Climate Resilience. I am charging this task force to develop a comprehensive climate action plan for the university to consider. It will analyze greenhouse gas emissions at Rutgers University and advise the university on solutions to reduce the University's greenhouse gas footprint that are environmentally sustainable, fiscally responsible, scalable, and engage the broader community.

I expect this task force to develop and recommend a plan for Rutgers to achieve carbon neutrality across our institution. The task force must first define carbon neutrality within the context of the university community. Then, it is tasked with outlining scenarios, timelines, and key benchmarks for achieving this goal on as rapid a timeframe as is possible.

In addition, the Task Force will examine Rutgers' own exposure to climate change impacts. I expect it to look especially for approaches to reducing the university's vulnerability to these impacts.

As representatives of the State University of New Jersey, this task force is also charged with engaging the broader community in its work. Scholars, students, staff, state and local government, alumni, and business partners—all these groups present insight and perspectives that can contribute to achieving the goal of carbon neutrality and enhancing Rutgers' contribution to climate-positive economic development in New Jersey.

In developing its recommendations, this task force must give careful consideration to fiscal responsibility and to achieving our goal in a manner that balances the urgency of emissions reduction against the viability of our educational mission as a public university.

The committee will be responsible for recommendations across the scope of greenhouse gas emissions reduction, including carbon emissions, sources of energy, institutional practices, facilities, transportation, and behavioral change. Its work will consider greenhouse gas emission reductions at all university locations.

To lead this important task force, I have appointed Professors Robert Kopp and Kevin Lyons as co-chairs. Dr. Kopp is a professor in the Department of Earth and Planetary Science at the School of Arts and Sciences—New Brunswick and director of the Rutgers Institute of Earth, Ocean, and Atmospheric Sciences. Dr. Lyons is associate professor of professional practices at Rutgers Business School–Newark and New Brunswick and an associate director of the Rutgers Energy Institute. They will work closely with Senior Vice President for Academic Affairs Barbara Lee and Executive Vice President of Planning and Operations Tony Calcado to constitute the membership of the Task Force. I have requested that they report back on their preliminary findings by Spring 2020.

Robert Barchi, President

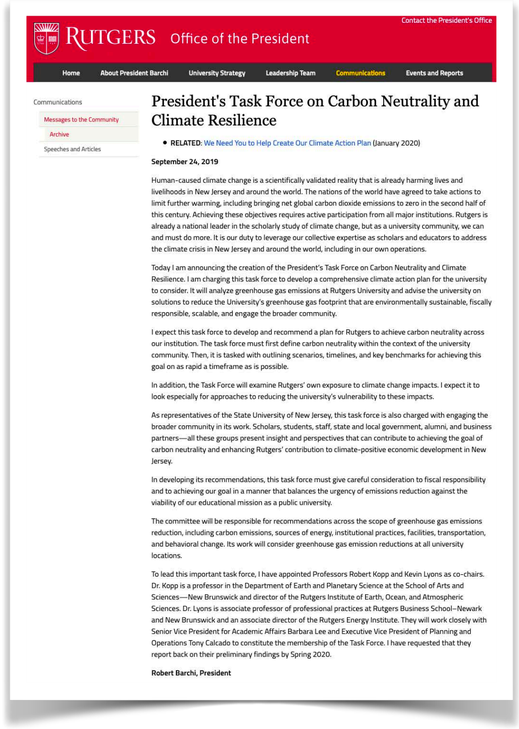
September 24, 2019:
Task Force Established

TASK FORCE GOALS

Develop Rutgers' strategies for

1. *Carbon Neutrality:* contributing to achieving global net-zero carbon dioxide emissions

2. *Climate Resilience:* Enhancing the capacity of the university and the State of New Jersey to manage the risks of a changing climate



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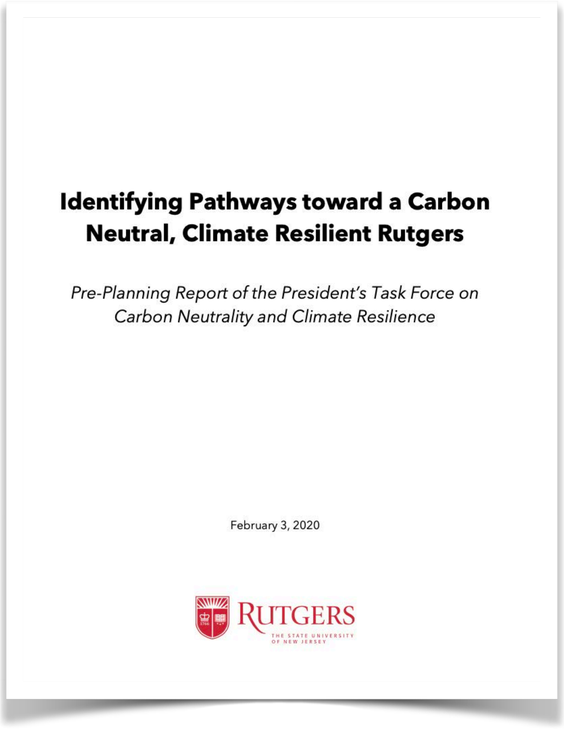

Identifying Pathways toward a Carbon Neutral, Climate Resilient Rutgers

Pre-Planning Report of the President's Task Force on Carbon Neutrality and Climate Resilience

February 3, 2020

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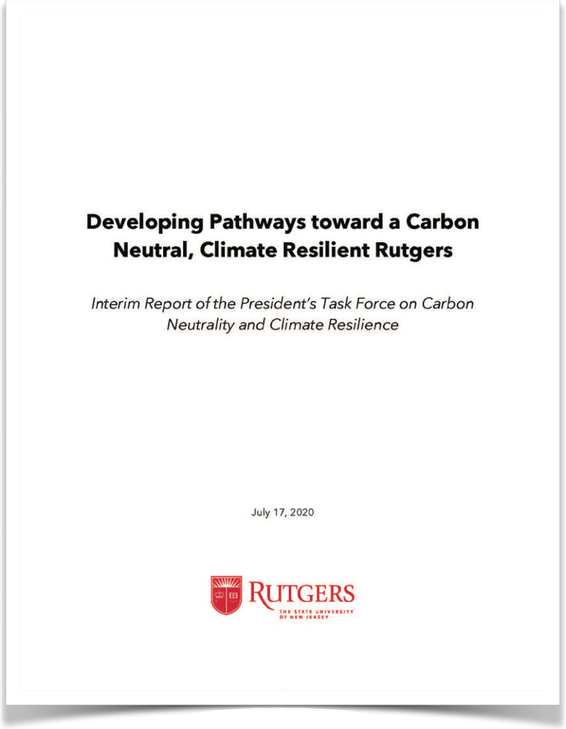
THE STATE UNIVERSITY OF NEW JERSEY

February 3, 2020: Pre-Planning Report



Developing Pathways toward a Carbon Neutral, Climate Resilient Rutgers

Interim Report of the President's Task Force on Carbon Neutrality and Climate Resilience

July 17, 2020

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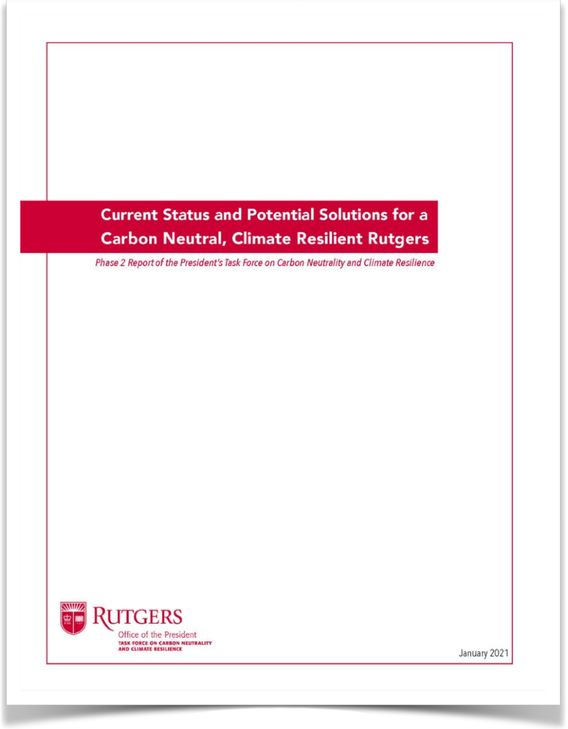
THE STATE UNIVERSITY OF NEW JERSEY

July 17, 2020: Interim Report



Current Status and Potential Solutions for a Carbon Neutral, Climate Resilient Rutgers

Phase 2 Report of the President's Task Force on Carbon Neutrality and Climate Resilience

RUTGERS
Office of the President
TASK FORCE ON CARBON NEUTRALITY AND CLIMATE RESILIENCE

January 2021

February 11, 2021: Phase 2 Report

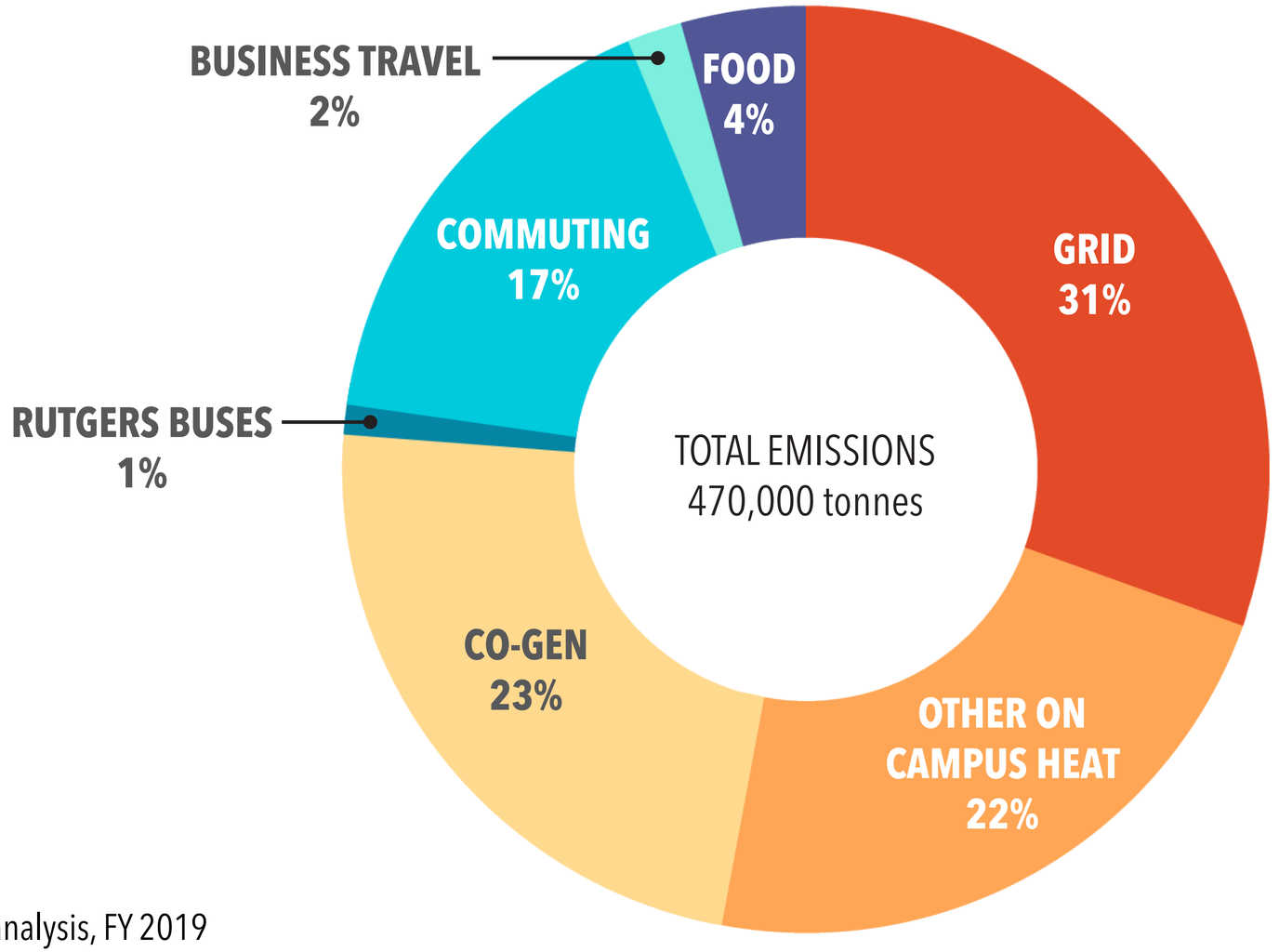
Rutgers is already a leader in climate change research and engagement

- The Rutgers Institute of Earth, Ocean, and Atmospheric Sciences, the Rutgers Climate Institute, and the Rutgers Energy Institute bring together over 200 faculty working to understand our planet and how to live on it in a more sustainable and resilient manner.
- Rutgers is among the top four Big 10 schools in research activity in Earth, ocean, and atmospheric sciences ($27 million in research awards in FY 2020)
- Faculty active in efforts like UN Intergovernmental Panel on Climate Change, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, and the National Climate Assessment
- Pioneering efforts in community-engaged climate research and engagement, through initiatives like New Jersey Climate Change Alliance, Getting to Resilience, and the Coastal Climate Risk & Resilience graduate program, New Jersey Climate Change Resource Center
- Achieving a more sustainable future for our region and the planet is the centerpiece of Earth 2100, one of the University Big Ideas President Holloway unveiled earlier this year

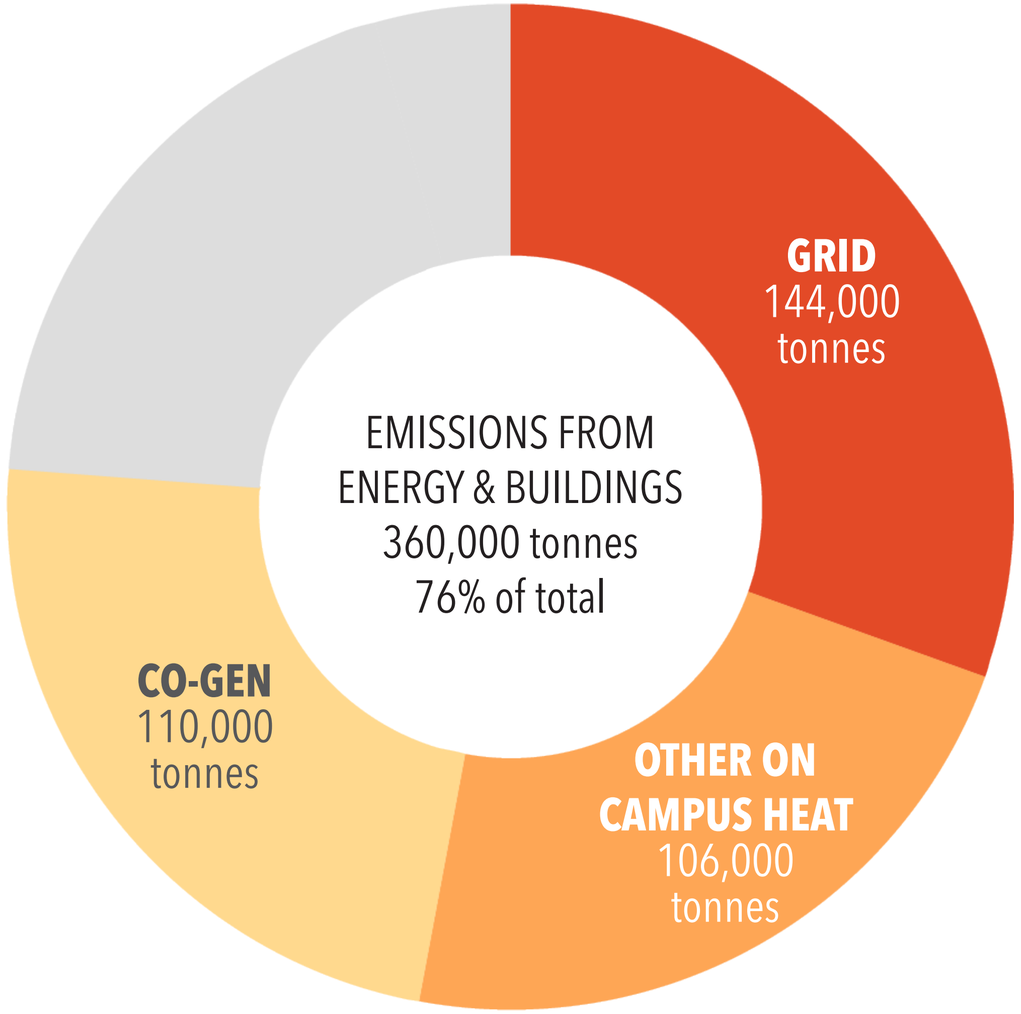
Rutgers has already taken actions to reduce its emissions

- 10 MW of on-campus solar capacity
- New facilities built to LEED Silver standard
- Sustainability is key objective of 2015 Master Plan

RUTGERS GREENHOUSE GAS EMISSIONS by sector



From Phase 2 Report: SIMAP analysis, FY 2019
http://go.rutgers.edu/CTF_Phase2



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Potential Energy and Buildings Solutions

Decarbonize electricity supply

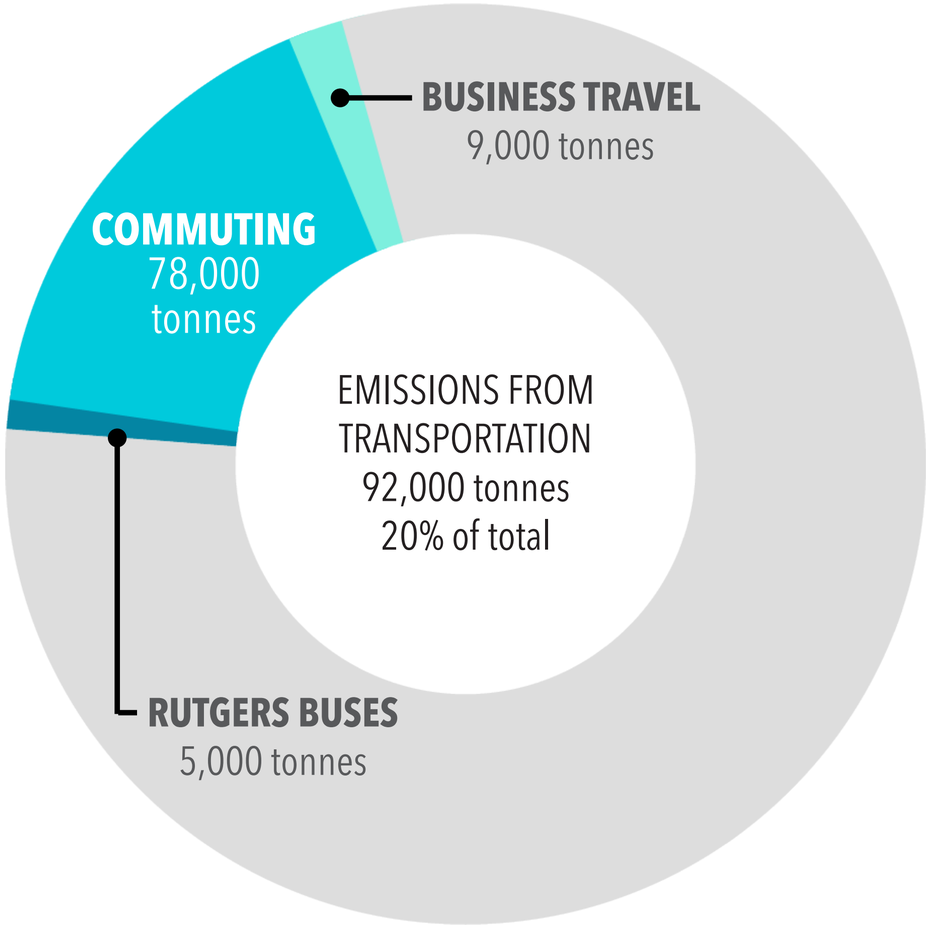
- Expand on-campus solar (Rutgers-owned)
- Expand on-campus solar (third-party owned)
- Purchase off-campus wind or solar electricity

Decarbonize heat supply

- Phase natural gas out of campus heat production

Reduce building energy demand

- Retrofit less efficient buildings
- Install metering, monitoring, and control systems
- Decommission old, inefficient buildings
- Adopt new construction and energy standards



Potential Transportation Solutions

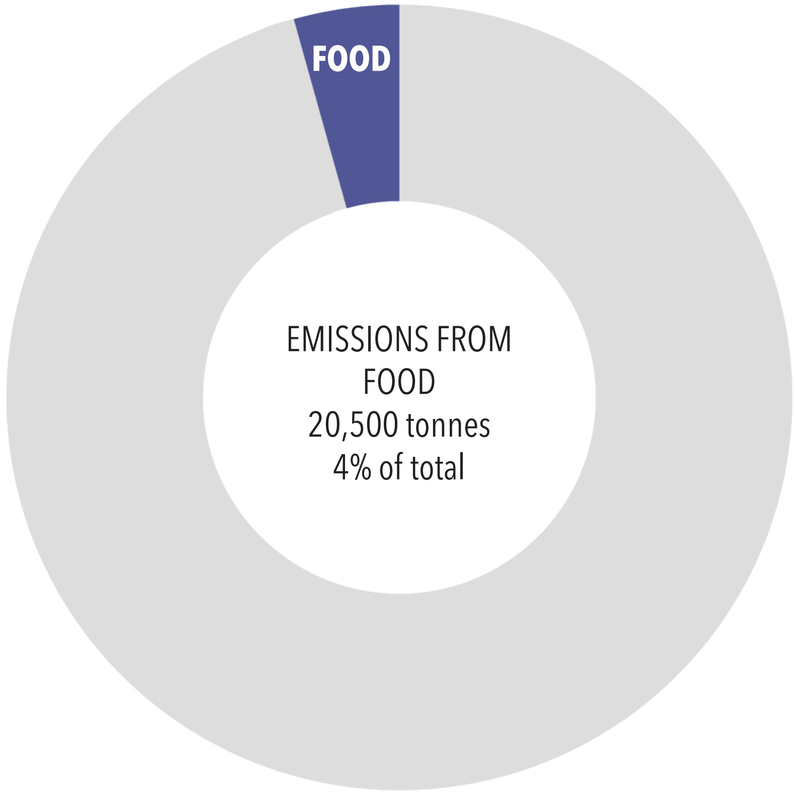
Decarbonize Rutgers-owned vehicles and equipment

- Electrify fleet
- Electrify maintenance equipment

Reduce Fossil-Fueled Vehicle Miles Traveled

- Create safe bicycle and pedestrian infrastructure
- Expand telecommuting
- Expand subsidies for public transit
- Providing parking cash-out
- Incentivize reduced business travel
- Provide incentives for EVs

From Phase 2 Report: SIMAP analysis, FY 2019
http://go.rutgers.edu/CTF_Phase2



Potential Food and Water Systems Solutions

- Adopt a climate-friendly food labeling system
- Eliminate plastic bags in all retail and foodservice establishments in campus facilities
- Shift to more "Plant Forward" meals
- Continue supporting locally sourced fresh products when in season
- Explore anaerobic digestion and/or commercial composting with the local communities

Potential Supply Chain and Waste Management Solutions

- Implement a comprehensive University source reduction & reuse policy and program
- Purchase products with reduced toxic or hazardous chemicals
- Contract with suppliers that offer end-of-life reuse, recycling, and/or takeback agreement programs. (i.e. pipettes and vials in lab)

From Phase 2 Report: SIMAP analysis, FY 2019
http://go.rutgers.edu/CTF_Phase2

Potential Solutions to Promote a Culture of Sustainability

- Create sustainability orientation for new students
- Include sustainability education in New Student Programs, University Housing, University and college ambassadors, and Fraternity and Sorority Life
- Create a sustainability awareness campaign for all students, faculty and staff
- Create a sustainability workshop series that develops student leadership
- Develop a Sustainable Labs Program

Photo: Nick Romaneko

Potential Solutions for Expanding Carbon Sinks

Photo: Zeete/Wikimedia

Enhance land management practices

- Expand no/eco-mow zones
- Establish design and budgeting standards for landscaping associated with capital projects and require replacement of trees removed for capital projects
- Promote sustainable agricultural practices on Rutgers farms
- Develop an emissions inventory and reduction plan for Rutgers farms

Prioritize carbon sequestration on Rutgers lands

- Develop and implement afforestation plan
- Develop and implement individual campus “urban” forestry master plans.
- Establish line item in University budget for yearly tree plantings
- Convert lawn to trees
- Develop Low Carbon Construction Materials Policy

Photo: Mark Dye/Star-Ledger

Potential Solutions for Climate Preparedness

Conduct ongoing risk monitoring

- Monitor changing climate risks, including expanding coverage of Rutgers NJ weather stations to all campuses
- Make data for planning and response efforts available to all stakeholders

Enhance and coordinate resilience planning and communications

- Assess climate vulnerability of critical on-campus infrastructure and develop climate-resilience design standards
- Coordinate with local, state and federal partners to assess climate vulnerability of critical off-campus infrastructure
- Implement climate resilient building, infrastructure, and operations on and adjacent to Rutgers facilities
- Enhance climate/weather risk communication, especially for vulnerable student populations
- Participate in state and county all hazard mitigation planning activities
- Develop all climate hazards mitigation plans for each Rutgers campus in conjunction with neighboring municipalities, counties and state agencies to ensure continuity of teaching, research and service during extreme events
- Develop plans to address student, staff, and faculty vulnerabilities

Potential Solutions for Climate Governance at Rutgers

Establish a University-wide Office of Climate Mobilization reporting to senior University leadership

- Amplify, connect, and expand existing interdisciplinary research, teaching and engagement efforts related to climate change, particularly with social equity and economic development lenses
- Establish a Climate Mobilization and Sustainability Dashboard to monitor and report on Climate Action Plan progress and other sustainability metrics
- Develop a detailed financial model for the Climate Action Plan and identify opportunities to integrate climate considerations into the University budget model, including the establishment of a Green Revolving Fund
- Develop a comprehensive strategy for communicating about University climate action to internal and external stakeholders
- Work with Federal Relations, faculty, and staff to shape and respond to opportunities for government financing of climate infrastructure and research
- Oversee periodic revision of the Climate Action Plan

Photo: America Is All In

Proposed Principles for Advancing Climate-Positive, Equitable Economic Development as Part of University Climate Action

In pursuit of climate-positive, equitable economic development, Rutgers University will implement policies, programs, and projects that accelerate the socially equitable and inclusive transformation of New Jersey's economy to one that is powered by clean, renewable energy, produces net-negative carbon emissions, and is resilient to climate and related impacts and shocks.

- *Climate-positive*, because it absorbs more carbon than it emits.
- *Equitable*, because everyone gets a fair share of benefits, costs, risks and the opportunity to have a say in making decisions.
- *Sustainable*, because it promotes economic development while sustaining natural resources and the environment for future generations.

Other University action on climate: Fossil-Fuel Divestment

On March 9, following the recommendation of an ad hoc committee of faculty, students, and staff, the Boards of Governors and Trustees voted to:

- Cease all new investments in fossil fuels;
- Divest from passive index funds with fossil fuel investments within one year and reinvest in more environmentally friendly versions of those indices.
- Actively seek new investment opportunities in renewable energy and energy efficiency categories that deliver competitive rates of return;
- Exit all currently held private fossil fuel investments within 10 years.

Other University action on climate: America Is All In

Rutgers has joined 126 other universities and colleges, along with 147 cities, 1151 business, 42 investors, 3 states, 2 tribal nations, 41 cultural institutions, 249 faith groups, and 15 health care organizations in signing the America Is All In pledge, calling for:

Driving economic growth across every sector of the economy through job-creating sustainable investments, through extraordinary, job-creating investments in clean buildings, low-carbon transportation, grid and infrastructure modernization, natural climate solutions, climate smart-agriculture, and community resilience, all of which will create millions of good-paying jobs and support a clean and just future for all Americans, and undertaking the necessary actions to achieve a 100% clean energy power sector as soon as feasible;

Expanding U.S. leadership at home and abroad, including putting forward an ambitious and equitable nationally determined contribution to the Paris Agreement, and committing the United States to a trajectory of net zero emissions by 2050 or sooner;

Reimagining community partnership to advance just and equitable climate solutions and build resilience to climate change.

Types of Offsets

University-initiated GHG emission offset and carbon removal projects:

- Projects would be initiated and managed by Rutgers OCM.
- Must be additive (i.e. must be new actions that would not have happened without the CAP) and adhere to other PAVER requirements. Not a passive sink that already exists.
- The amount of carbon equivalent that is being offset by each project would be determined using standard protocols and peer verification.
- Would count toward Rutgers' GHG emissions reduction or toward the goal of being carbon negative once peer verified.
- Could include many project types
    - Enhancing and Restoring Natural Lands (e.g., afforestation)
    - Offsite Energy Efficiency
    - Waste To Energy
    - Others

Purchased verified GHG emission offsets:

- Carbon credits purchased from a third party.
- Verified for adherence to PAVER standards.
- Further scrutiny of qualifying offset purchases would be provided by an offset advisory group
- Would count toward Rutgers' GHG emissions reduction
- Could include many project types
    - Renewable energy
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    - Afforestation
    - Cookstoves
    - Others

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Should Rutgers set near-term carbon neutrality targets achievable only with offsets?

Our Topics for Breakout Discussion Tonight

- **Considerations for prioritization solutions**
- **Integration of climate solutions into campus culture and academic mission**
- **Use of offsets in climate targets**

Rutgers Climate Task Force Mitigation Solutions Matrix

Solution	Potential Emissions Reductions	Initial Cost	Savings over time	Instiutional/Cultural Barriers
Scope 1 and 2				
Decarbonize Energy Supply				
Expand on-campus solar (Rutgers-owned)	High	High	High	Moderate
Expand on-campus solar (third party-owned)	High	Moderate	Low	Low
Purchase off-campus solar or wind energy	High	Moderate	Low	Low
Phase natural gas out of campus heat production	High	Very High	Moderate	High
Reduce Building Energy Demand				
Retrofit less efficient buildings	High	Moderate	High	Low
Install metering, monitoring and control systems	Moderate	Moderate	High	Low
Decommission old, inefficient bulidings	Moderate	Unknown	High	Moderate
Adopt new construction and energy standards	High	Moderate	High	Moderate
Decarbonize Vehicles and Equipment				
Electrify fleet	Low	Moderate	Moderate	High
Electrify maintenance equipment	Low	Low	Low	Moderate

Read more: https://climatetaskforce.rutgers.edu/4-27-town-hall/

Task Force Membership

- **Robert Kopp**, Co-Chair, SAS, Rutgers-New Brunswick
- **Kevin Lyons**, Co-Chair, Rutgers Business School, Rutgers-Newark and New Brunswick

- **Anna Agbotse**, SPAA (student), Rutgers-Newark
- **Clinton Andrews**, Bloustein School, Rutgers-New Brunswick
- **Brian Ballentine**, Chief of Staff, Office of the President
- **Holly Berman**, Bloustein School (student), Rutgers-New Brunswick
- **Margaret Brennan**, NJAES, Rutgers-New Brunswick
- **Joe Charette**, Rutgers Dining Services, Rutgers-New Brunswick
- **Wes Coleman**, Procurement, IPO
- **Adam Day**, Associate Treasurer, University Treasury
- **Elizabeth Demaray**, College of Arts and Sciences, Rutgers-Camden
- **Julia DeFeo**, College of Arts and Sciences (student), Rutgers-Camden
- **Nolan Fehon**, SEBS, Rutgers-New Brunswick
- **Panos Georgopoulos**, School of Public Health, RBHS
- **Jeanne Herb**, Bloustein School, Rutgers-New Brunswick
- **Marjorie Kaplan**, Rutgers Climate Institute, Rutgers-New Brunswick
- **Steven Keleman**, OEM, IPO
- **Michael Kornitas**, Facilities, IPO
- **Richard Lathrop**, SEBS, Rutgers–New Brunswick
- **Robin Leichenko**, SAS, Rutgers-New Brunswick
- **Jeremy Lessing**. RWJMS (student), RBHS
- **Jack Molenaar**, Transportation Services, IPO
- **Xenia Morin**, SEBS, Rutgers-New Brunswick
- **Robert Noland**, Bloustein School, Rutgers-New Brunswick
- **Nimish Patel**, Chief Procurement Officer
- **David Robinson**, SAS, Rutgers-New Brunswick
- **Ashaki Rouff**, SAS-Newark, Rutgers-Newark
- **David Schulz**, University Architect, IPO
- **Rachael Shwom**, SEBS, Rutgers-New Brunswick
- **Carl Van Horn**, Bloustein School, Rutgers-New Brunswick
- **Roger Wang**, School of Engineering, Rutgers-New Brunswick
- **Frank Wong**, Planning and Development, IPO

- **Angela Oberg**, Administrative Director