



SUNY/PPAA WINTER CONFERENCE

OFFICE FOR CAPITAL FACILITIES
JANUARY 2020

www.suny.edu



AGENDA



OCF Past, Present & Future

Energy and Sustainability

Operations

Capital

OCF PAST AND PRESENT

2010

First presentation 10 years ago, January 2010

Original Functions:

EH&S, Energy & Real Property

Current Functions:

EH&S, Energy, Res Hall and CC Capital, Space and Asset Management, Campus Lets, & Emergency Management

OCF FUTURE

Increased staff in two areas:

Energy and Carbon:

EH&S:

Additional Developments

Updating Res Hall asset life cycle

More Res Hall program metrics

Starting CC asset Life Cycle

Implementing more AiM O&M campuses

A woman with short blonde hair, wearing a dark blue blazer over a white top and a pearl necklace, is seated at a wooden table with her hands clasped. She is smiling at the camera. The background shows a modern office interior with large windows and dark wood paneling.

"By the end of SUNY at 75, and well ahead of the Climate Act's 2040 deadline, we have set a goal that 100% of all our electricity system-wide will come from zero-carbon resources."

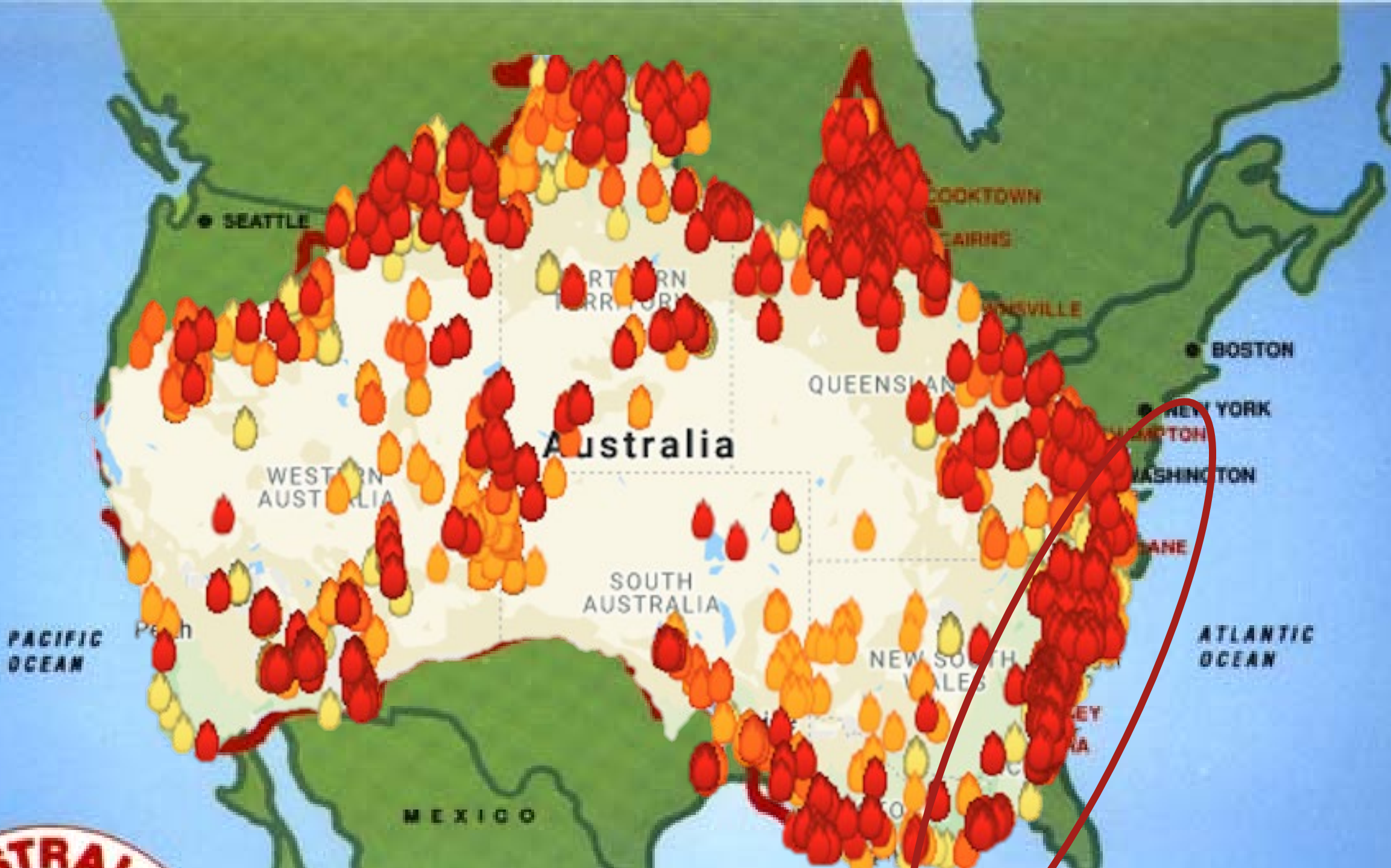
Chancellor Johnson

A woman with short blonde hair, wearing a dark blue blazer over a white top and a pearl necklace, is sitting at a wooden table with her hands clasped. She is smiling at the camera. The background shows a modern interior with large windows and a blue sofa.

We owe it to our students to try to prevent our own species from going the way of the dinosaurs. Absolute disaster is encroaching more quickly even than climate scientists expected, in the form of horrific wildfires like those that have just displaced so many people and destroyed an estimated billion animals in Australia; rising sea levels, inland flooding, and extreme weather of all kinds; melting polar ice; crop failures; and a frightening rate of extinctions.

Chancellor Johnson





HUMAN IMPACT ON THE EARTH

347 AD First Oil Wells

1740 Modern Coal Mining

1760 Start of the Industrial
Revolution

1791 Turbine invented

1794 Internal Combustion
Engine

1859 First Modern Drilling for Oil

2020 Climate Crisis



HUMAN IMPACT ON THE EARTH

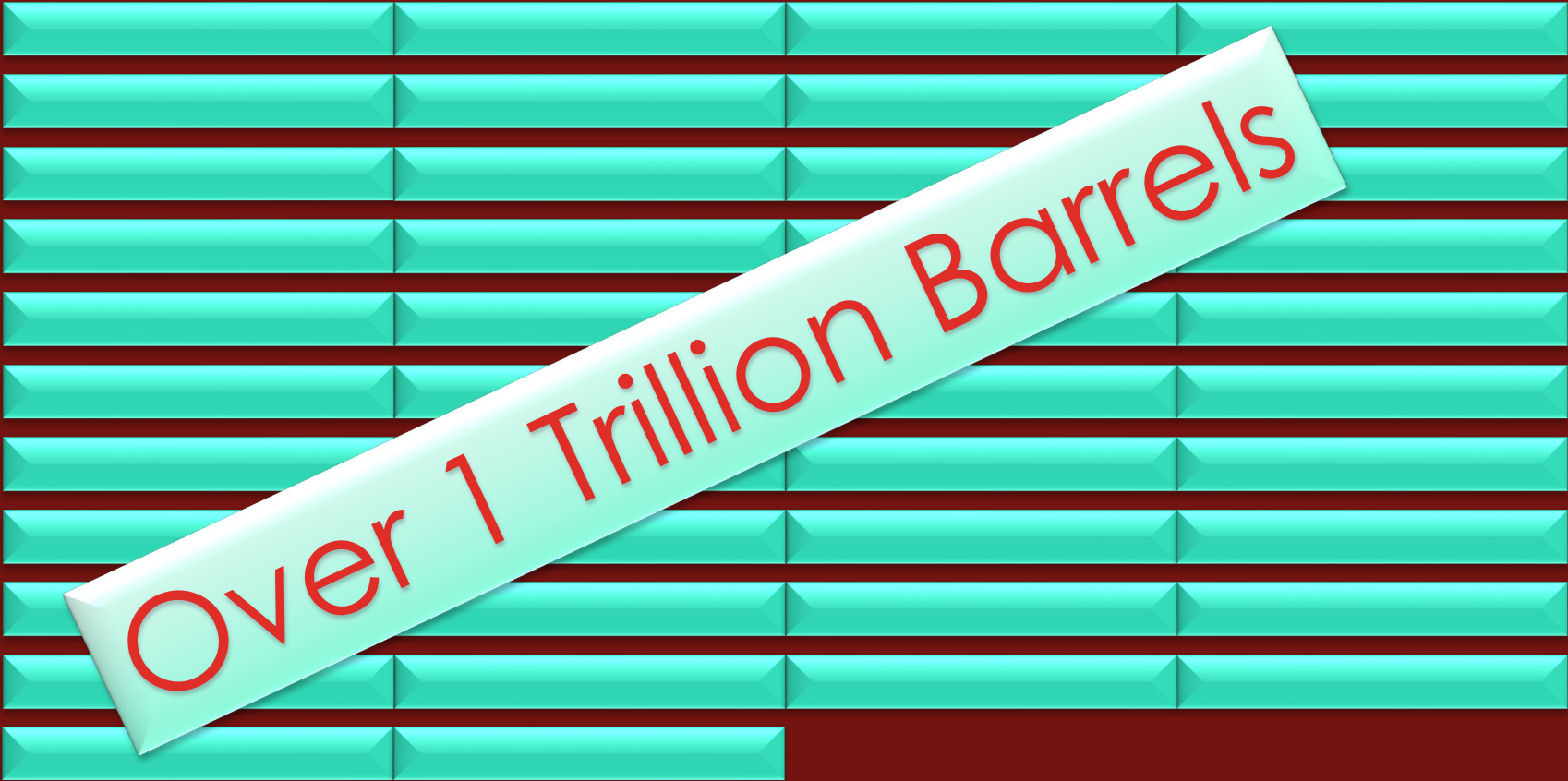
Earth Population
(in Millions)

Year AD



Barrels of Oil Used
(in Millions)

Year AD

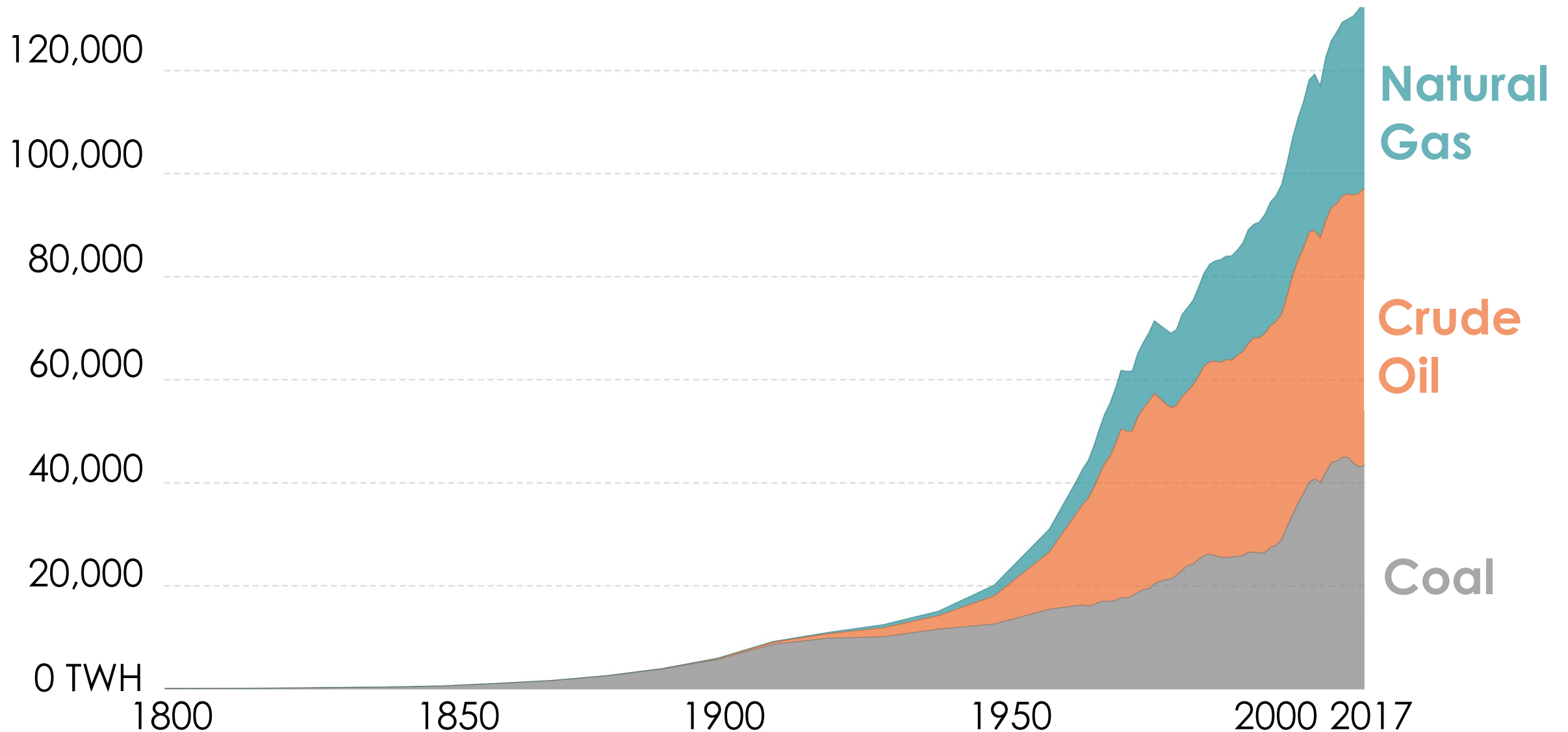


Over 1 Trillion Barrels

34,300.0

Global Fossil Fuel Consumption

Global primary energy consumption by fossil fuel source measured in terawatt hours (TWh)

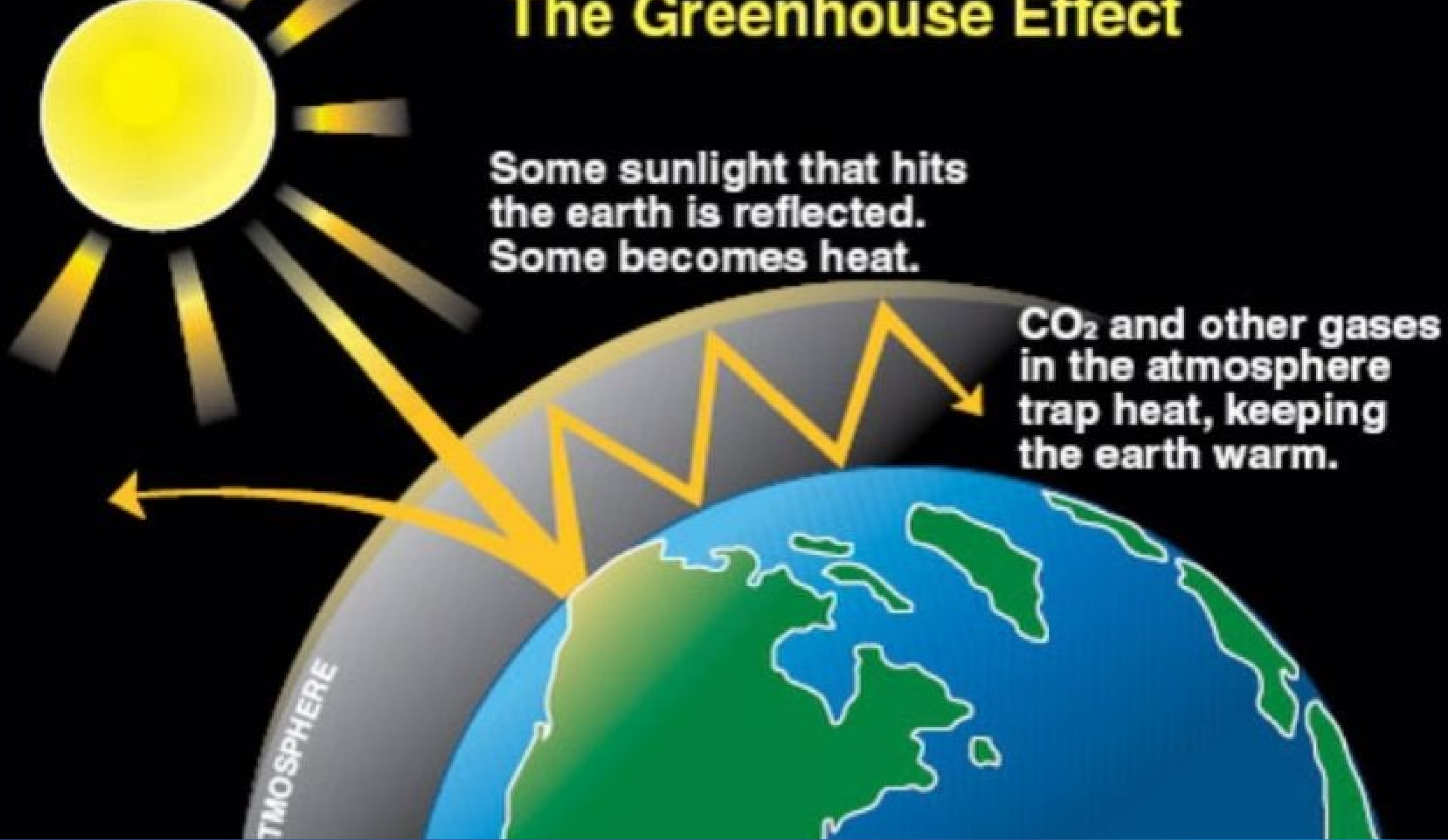


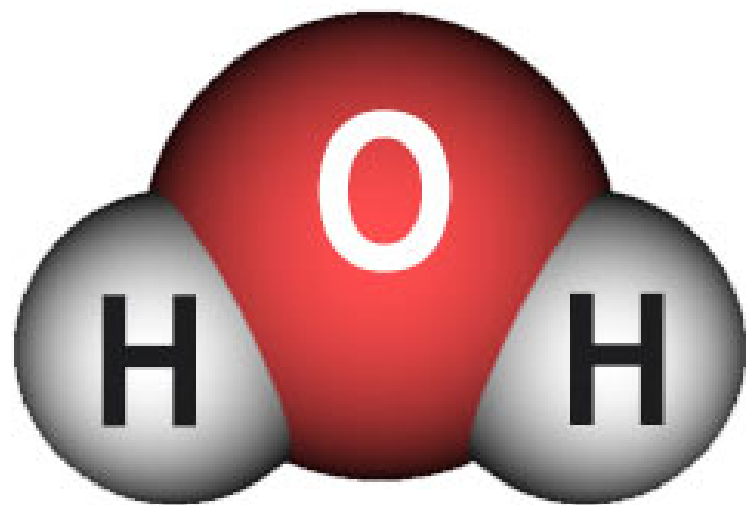
Source: Vaclav Smil (2017). Energy Transitions: Global and National Perspective & BP Statistical Review of World Energy
OurWorldInData.org/fossil-fuels/ • CC BY

The Greenhouse Effect

Some sunlight that hits the earth is reflected. Some becomes heat.

CO₂ and other gases in the atmosphere trap heat, keeping the earth warm.

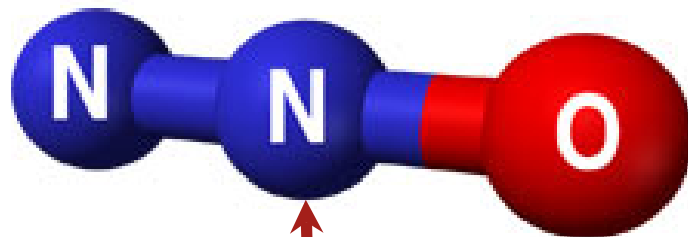




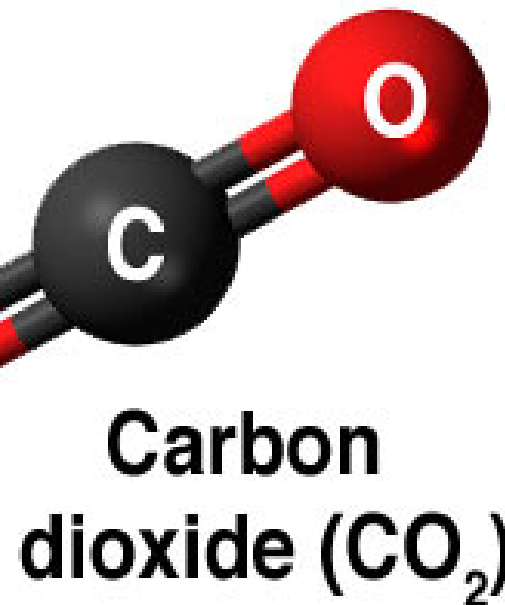
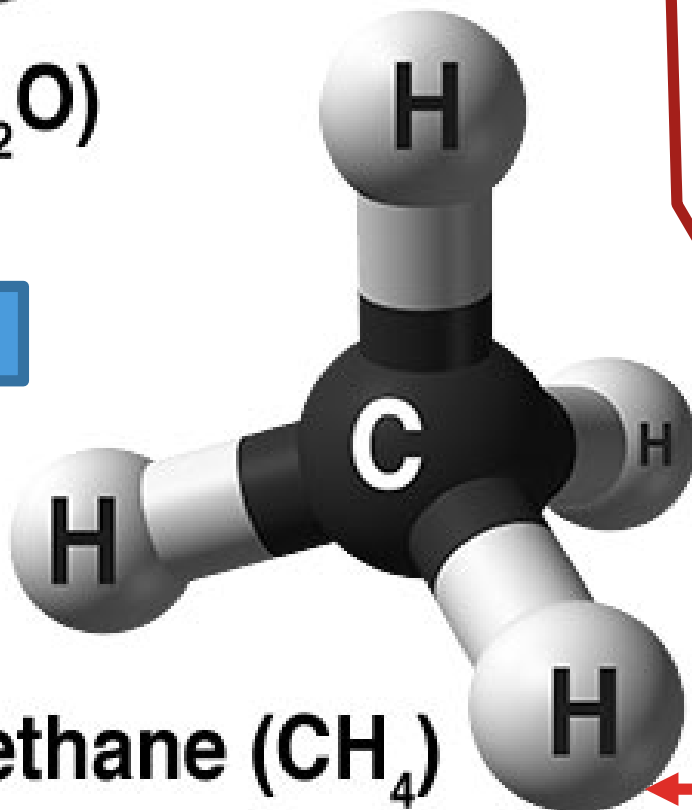
Water vapor (H_2O)

Feedbacks

Nitrous oxide (N_2O)



Methane (CH_4)



Carbon dioxide (CO_2)

Forcing Gasses

CONGRATULATIONS!
YOU DID IT

THE 2020 EO88 REPORT – SUNY MEETS 20% GOAL

Goals SUNY has Met

- ✓ ➤ **20% x 2020** reduction in EUI from 2010-11 (Current Reduction including planned projects as of April 2019 ≈20%) (EO88)
- ✓ ➤ GHG reduction of **30% x 2020** from 1990 levels (Current Reduction 39.2%) (State Energy Plan)

State Energy Plan Additional Goals

- **40% x 2030** reduction in GHG from 1990 base
- **85% x 2050** reduction in GHG from 1990 base by
- **50% x 2030** electricity from renewable energy

EO166 Goal

- **28% x 2025** reduction in GHG from 2005 base in support of the Paris Accord

THE GOALS

CLCPA Goals

- ★ ➤ 185 trillion Btu energy use reduction by **2025** from
- ★ ➤ Doubling solar deployment to 6,000 megawatts by **2025**
 - Deploying 3,000 megawatts of energy storage by **2030**
 - 70% electricity from renewable energy by **2030**
 - Quadrupling NY's offshore wind to 9,000 megawatts by **2035**
 - 100% clean electricity (emission free) by **2040**
- ★ ➤ 100% economy-wide net-zero carbon emissions by **2050**

Climate Leadership Community Protection Act Timeline

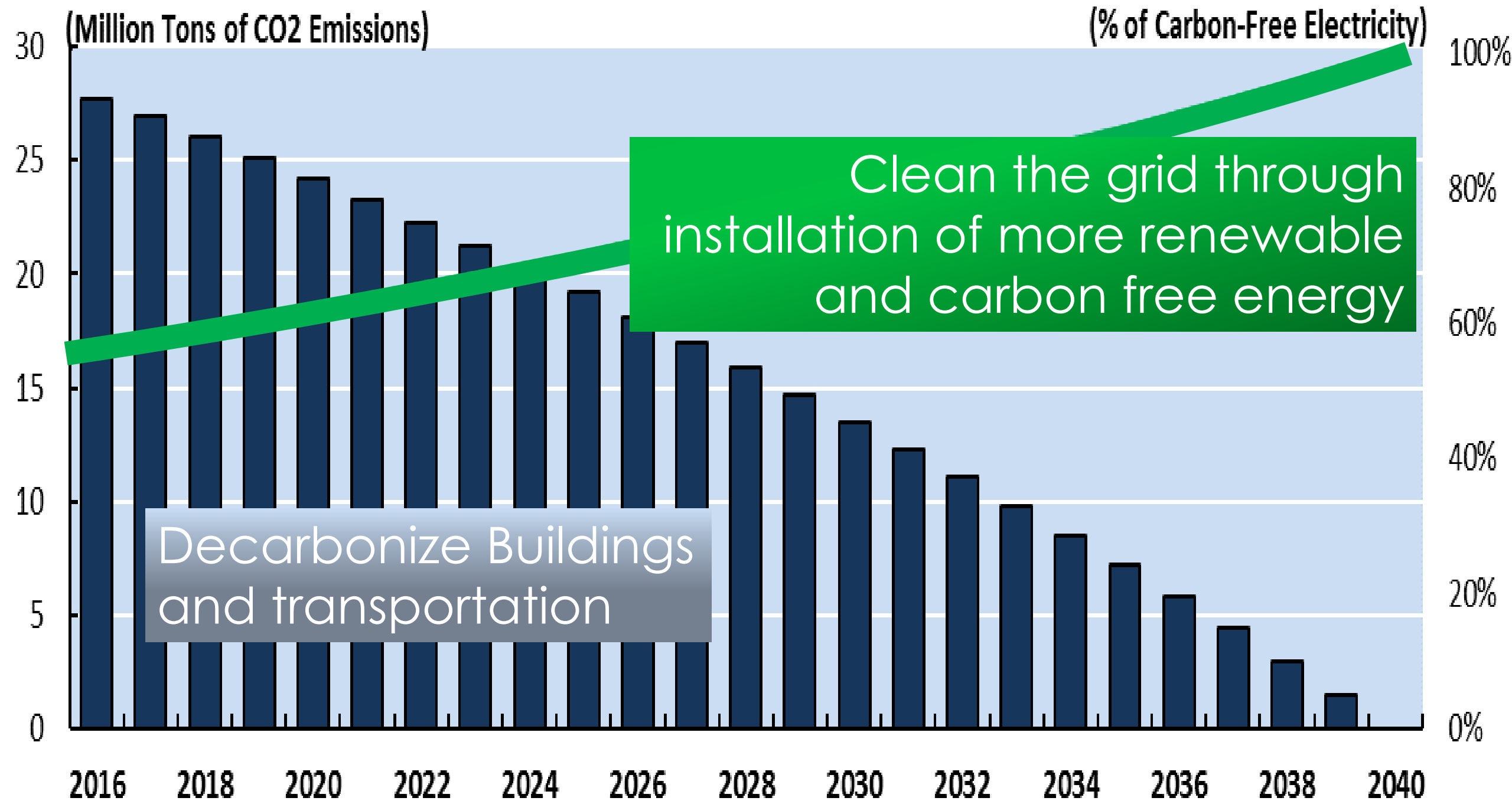


Source: Information provided by the Business Council of New York State and the governor's office based on deadlines set out in the statute.

A woman with short blonde hair, wearing a dark blue blazer over a white top and a pearl necklace, is sitting at a wooden table with her hands clasped. She is smiling at the camera. The background shows a modern office interior with large windows and dark wood paneling.

“And while we decarbonize our electricity, we are electrifying aspects of our operations that today require the burning of fossil fuels, from heating and cooling to transportation..”

Chancellor Johnson



HEAT PUMPS AND GEO THERMAL



Residential and light commercial grade



Institutional grade Heat Pumps – District Heating

EN253 Flexible site distribution piping



Thermal Storage



NY-GEO 2020 • The Northeast's Premier Heat Pump Conference

Wednesday, March 25 • Day 1 Events

8:00–9:00

Location: Exhibitor Area

<https://ny-geo.regfox.com/ny-geo-2020-conference-home-page>

9:00–10:00

Welcome/Housekeeping: John Ciovacco / Board Member, NY-GEO

Bill Nowak / Executive Director, NY-GEO

Opening Remarks: John Franceschina / President, NY-GEO

Day 1 Keynote: Alicia Barton, CEO, NYSERDA

Rooms→

Salon B, C

Empire Room

Salon D

Salon A

Board Room

Tracks→

PROGRAMS & POLICY TRACK

DESIGN TRACK

BUILDING ELECTRIFICATION

HEAT PUMP TECHNOLOGY

SPECIAL EVENTS

10:00–11:00

UPDATE:
The Future of Clean Heating &
Cooling Programs in
New York State
Wendy MacPherson / NYSERDA

NEW
Grounded In Reality:
Better Ground Source Heat
Pump Design
Lisa Meline P.E. / Meline Engineering

2020 GeoStar Top Job
Geothermal Project Presentations
5 Finalists: TBA
For Entry Details
See Conference Main Menu

Sponsored by GeoStar

NEW
Heat Pumps 101:
An Introduction to Heat Pump
Technologies
Jay Egg / Egg Geothermal

CGD: Designing the Mechanic
System
Session 8 of 10
(Registered CGD students only)
Ed Lohrenz / GEOptimize Inc.

11:00–11:30

Coffee Break & Mingling with Exhibitors (Ask About Sponsoring)

11:30–12:30

NEW
The Role of Quality Assurance
in the Conversion to
Heat Pumps

NEW
Navigating Codes, Standards &
Practical Experience
in GSHP Design
Lisa Meline P.E. / Meline Engineering

UPDATE:
Heat Pumps' Role in
Environmentally Beneficial
Electrification
Bob Wyman / Consultant
Jerry Acton / Physicians, Scientists &
Engineers for Healthy Energy

UPDATE:
NYSERDA's Air Source &
Ground Source Heat Pump Study
Results
Scott Smith / NYSERDA
Other Speakers TBA

CGD: Designing the Mechanic
System
Session 9 of 10
(Registered CGD students only)
Ed Lohrenz / GEOptimize Inc.

Day 1 • Wednesday Afternoon Events

Workshop Module Schedule

NET ZERO WEBINARS

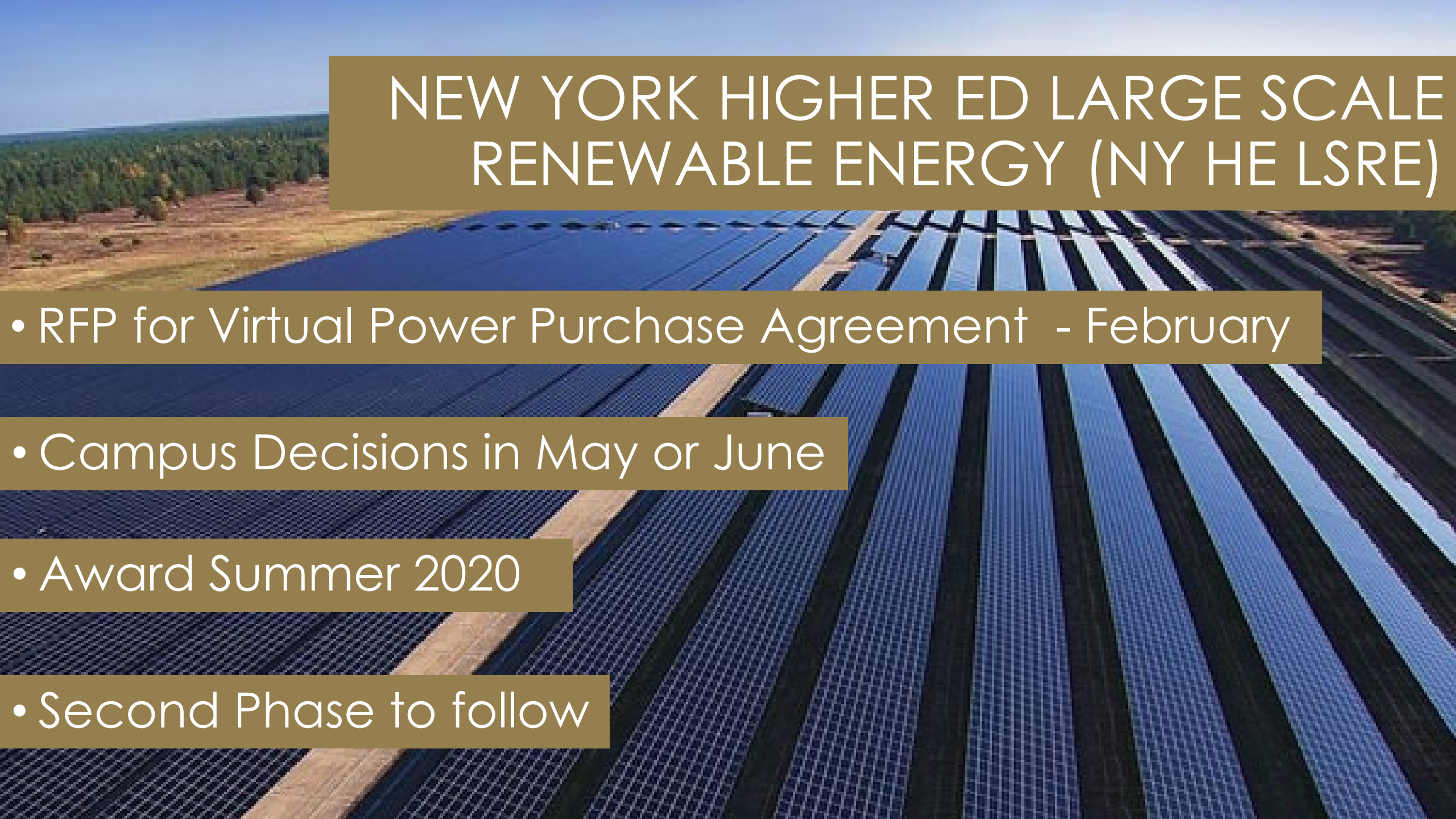
1. 2/10 or 11 Overview Net Zero Building Concepts, Techniques & Benefits
2. 2/24 or 25 Deep Dive Construction & High-Performance Products
3. 3/ 9 or 10 Deep Dive into Air Barrier Development & Implementation
4. 3/ 23 or 24 Net Zero HVAC Strategies and Controls + DHW
5. 3/30 or 31 Contracting Net Zero: Construction Documents & Bidding
6. 4/6 or 7 Deep Energy Retrofits: Gut Rehab or Full Occupancy Retrofits
7. 4/13 or 14 Refrigerant Management Design, Construction, & Operations
8. TBD Construction Manager/Subcontractor/Tradesperson: Class & Field



★ SUNY Leading by Example



★ 7 – Affordable and Clean Energy; 9 – Industry, Innovation and Infrastructure; 11 – Sustainable Cities and Communities; and 13 – Climate Action



NEW YORK HIGHER ED LARGE SCALE RENEWABLE ENERGY (NY HE LSRE)

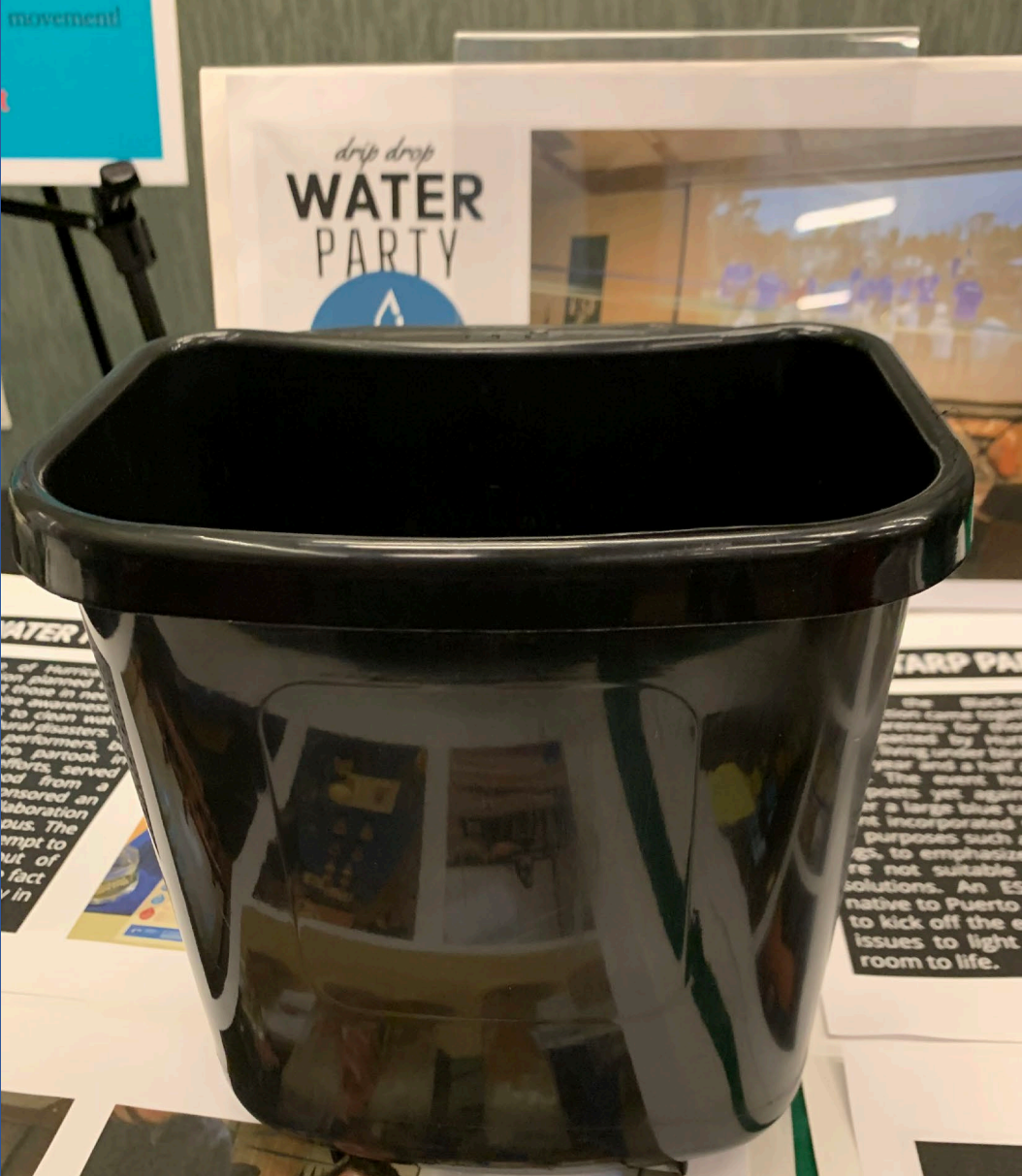
- RFP for Virtual Power Purchase Agreement - February
- Campus Decisions in May or June
- Award Summer 2020
- Second Phase to follow

GREEN REVOLVING LOAN FUND

- Low interest loans $\approx$ 2.5% no additional fees
- Projects that save on energy budget
- Launching this Spring

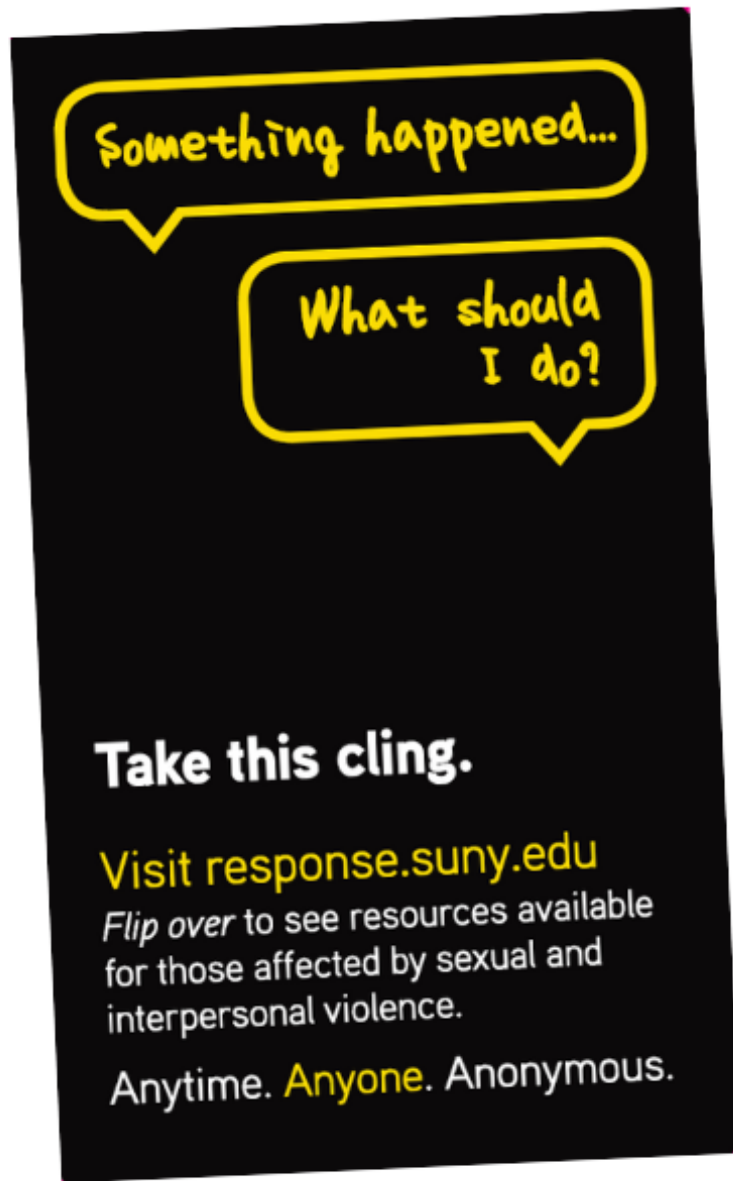


Operations



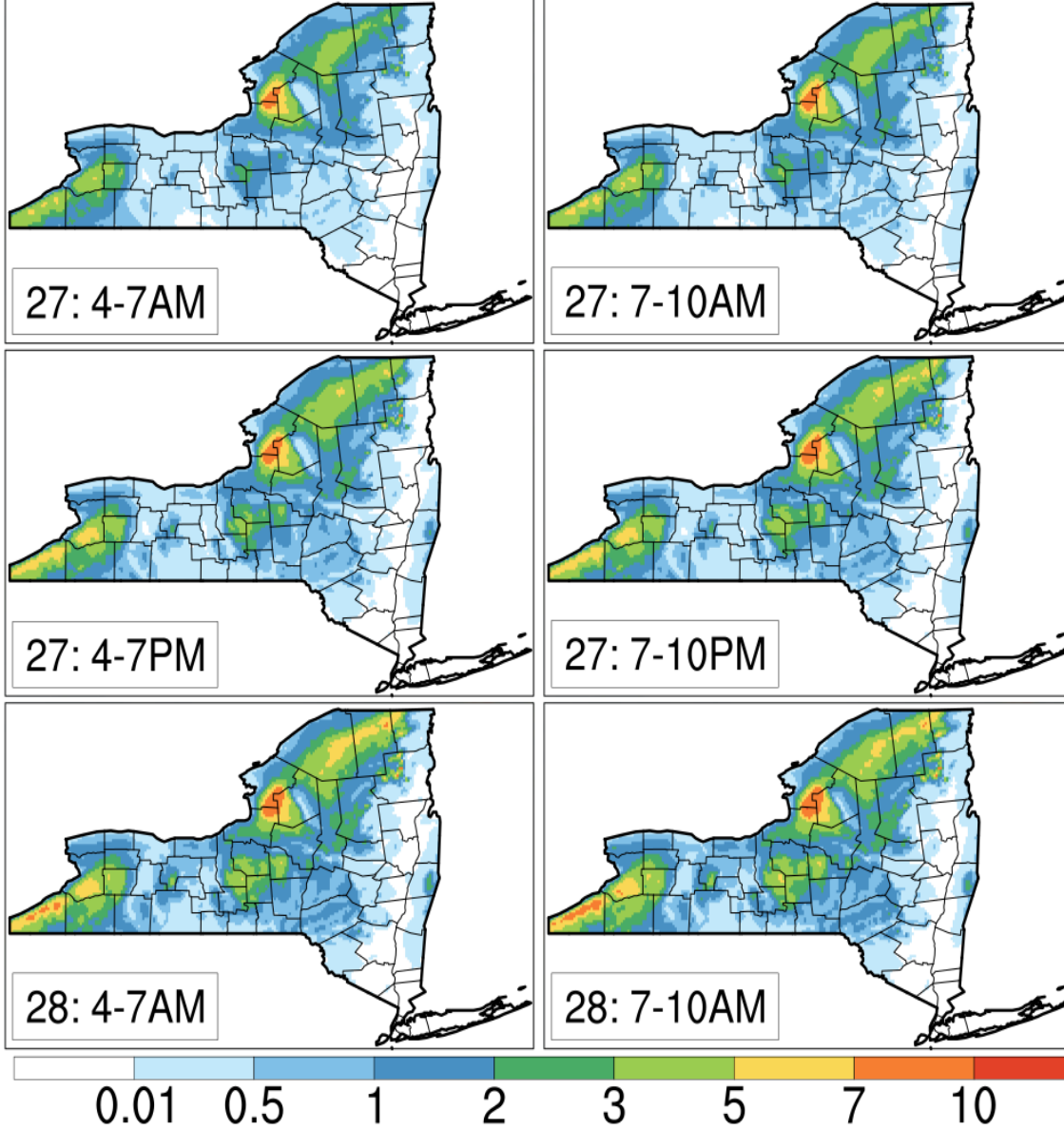
MINI BINS

Susan Fassler
Sustainable Facilities Manager scfassle@esf.edu



Mirror clings can be placed in academic and residential bathrooms on the bottom left hand corner, and replaced when taken by a student.

Vertical business cards may be handed out to students or placed in business card holders.



Winter Weather Risk Assessment Table

Made 2020-01-26 4:18PM

	Sunday, Jan. 26 th				Monday, Jan. 27 th				Tuesday, Jan. 28 th							
Snowfall (10:1)	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM
0.01"+ Snowfall:	Medium	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
0.25"+ Snowfall:	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
1"+ Snowfall:	Low	Low	Low	Low	Low	Low	Low	Low	Low		Low	Low				
2"+ Snowfall:	Low	Low	Low	Low								Low				
3"+ Snowfall:																
Snowfall (Total)	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM
0.1"+ Snowfall:	Medium	Medium	High	High	High	High	High	High	High	High	High	High	High	High	High	High
1"+ Snowfall:	Low	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	High
3"+ Snowfall:	Low	Low	Low	Low	Low	Low	Low	Low	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
6"+ Snowfall:			Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
12"+ Snowfall:																
Freezing Rain (3 Hour)	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM
0"+ Freezing Rain:	Low	Low		Low		Low				Low					Low	
0.01"+ Freezing Rain:	Low	Low													Low	
0.1"+ Freezing Rain:																
0.25"+ Freezing Rain:																
0.5"+ Freezing Rain:																
Sleet (3 Hour)	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM
0"+ Sleet:																
0.01"+ Sleet:																
0.05"+ Sleet:																
0.1"+ Sleet:																
0.2"+ Sleet:																
Precipitation (3 Hour)	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM
0.01"+ Precipitation:	Medium	Medium	Medium	High	High	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
0.1"+ Precipitation:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
0.5"+ Precipitation:																
1"+ Precipitation:																
2"+ Precipitation:																
Average Wind Chill	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM	4-7PM	7-10PM	10-1AM	1-4AM	4-7AM	7-10AM	10-1PM	1-4PM
Below 10 °F:	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Below 0 °F:											Low	Low	Low	Low	Low	Low
Below -10 °F:																
Below -20 °F:																
Below -30 °F:																

% Coverage In New York

- "High" = > 50% Coverage
- "Medium" = > 10% Coverage
- "Low" = > 0% Coverage
- Blank Suggests Risk Is Unlikely

This Is A UAlbany Center Of Excellence Product

(Please contact nbassill@albany.edu with questions or comments)

- Note: This Is Not A National Weather Service Forecast, Nor Is It Designed To Replace Their Input
- Each Time (Or Interval) Indicates The Likelihood Of A Given Threshold Being Met At That Time (Or Interval)
- Underlying Model Data Can Be Unreliable - Use Thoughtfully



Sunrise: 7:21 am
Sunset: 5:06 pm

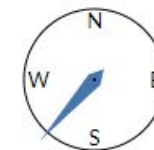
Laurens
Site Information



Moonrise: Jan 26 8:40 am
Moonset: Jan 26 7:04 pm
Phase: Waxing Crescent



33°F
Wind Chill 25°F



Winds
From SW at 8 mph
Gusting to 12 mph

January 26, 2020 9:45 PM EST

Above-Surface Measurements

Elevation: 1,627 feet
Relative Humidity: 86%
Dewpoint: 29°F
Station Pressure: 27.96"
Sea-Level Pressure: 29.56"
Solar Radiation: 0 W/m²
Snow Depth: 3"

Liquid-Equivalent Precipitation

6 hours: 0.00"
1 day: 0.03"
3 days: 0.79"
7 days: 0.79"

Soil Data

2 in. 34.3°F 0.53 m³/m³
10 in. 35.4°F 0.44 m³/m³
20 in. 36.0°F 0.42 m³/m³

Meteogram

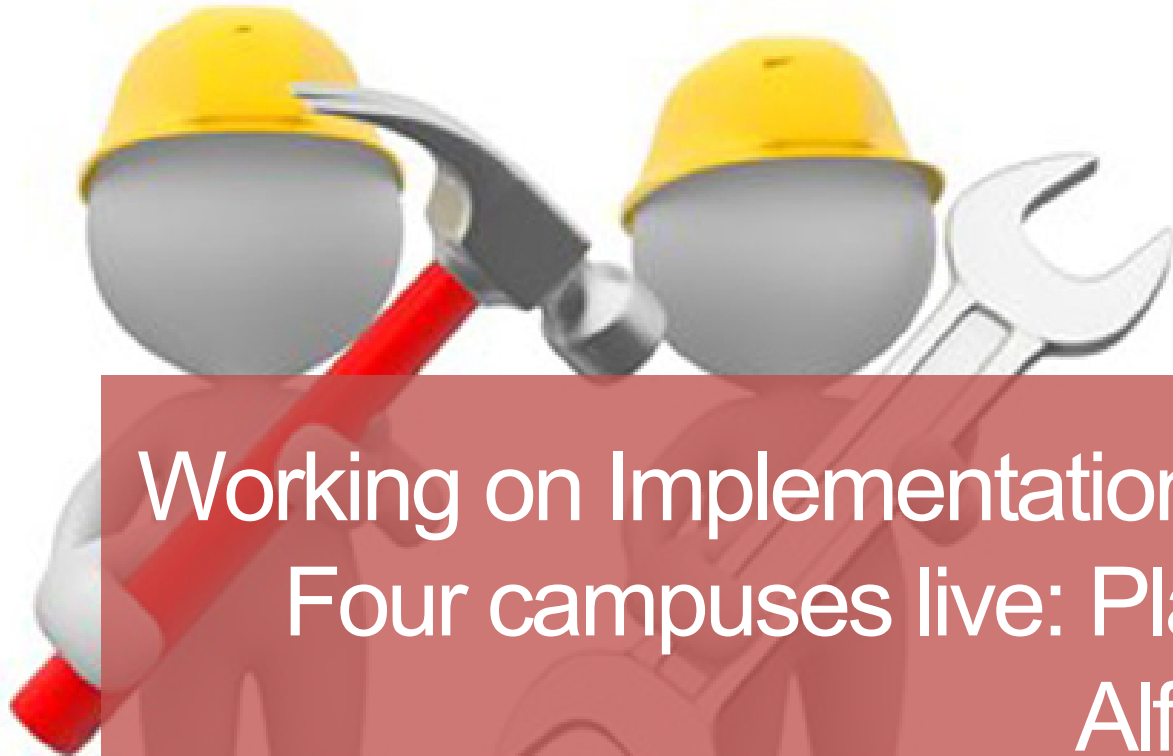
<http://www.nysmesonet.org/weather/local#network=nysm&stid=laur>

Forecast Data from the National Weather Service

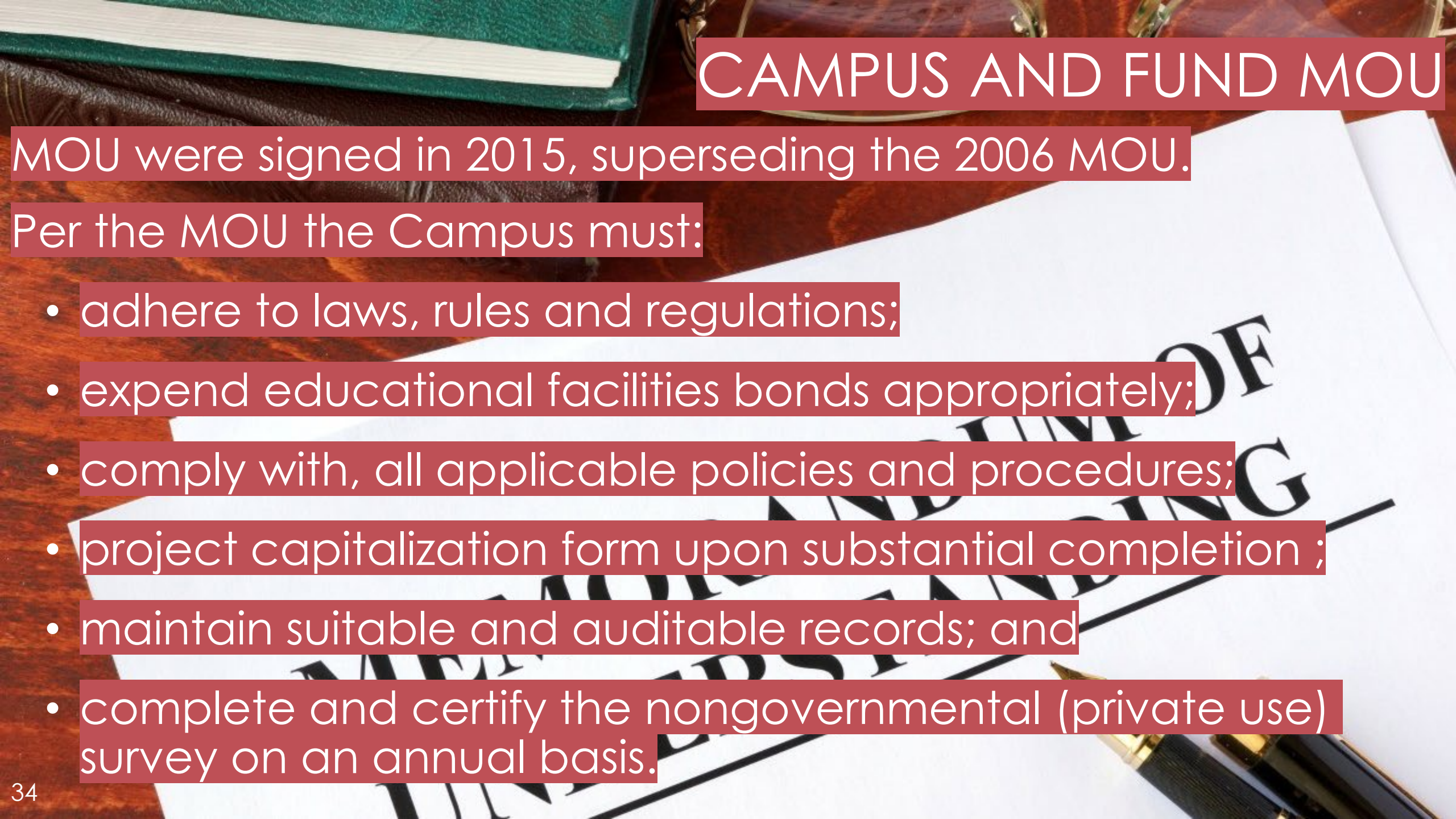
Powered by the New York State Mesonet

Tonight	Monday	Monday Night	Tuesday	Tuesday Night	Wednesday	Wednesday Night	Thursday	Thursday Night
								
50% → 70%	70% → 40%	40% → 30%	20%					
Snow Showers Likely	Snow Showers Likely	Scattered Snow Showers	Slight Chance Snow Showers	Mostly Cloudy	Mostly Sunny	Mostly Clear	Sunny	Mostly Clear
Low 30°F	High 34°F	Low 25°F	High 29°F	Low 16°F	High 26°F	Low 7°F	High 29°F	Low 12°F
Winds W at 9 mph	Winds W at 10 mph	Winds NW at 9 mph	Winds NW at 9 mph	Winds NW at 5 to 8	Winds NW at 7 mph	Winds N at 1 to 6	Winds N at 2 mph	Winds W at 2 mph

Integrated Workplace Management System (IWMS) AKA **AiM**



Working on Implementation of O&M
Four campuses live: Plattsburgh
Alfred State
Cobleskill
Jefferson CC

The background of the slide features a close-up of a wooden desk. On the left, there are several books stacked, with a green one on top. A brown leather folder or bag is partially visible. In the center-right, a white document is spread out, showing some printed text and a large, bold, serif font. A black pen with gold accents lies diagonally across the bottom right of the document. The overall lighting is warm, and the textures of the wood, leather, and paper are clearly visible.

CAMPUS AND FUND MOU

MOU were signed in 2015, superseding the 2006 MOU.

Per the MOU the Campus must:

- adhere to laws, rules and regulations;
- expend educational facilities bonds appropriately;
- comply with, all applicable policies and procedures;
- project capitalization form upon substantial completion ;
- maintain suitable and auditable records; and
- complete and certify the nongovernmental (private use) survey on an annual basis.

A wide-angle landscape photograph taken from a high vantage point on a grassy hill. A gravel path leads down the hill towards a small town in the distance. The sky is filled with dramatic, colorful clouds in shades of purple, pink, and blue, suggesting a sunset or sunrise. The foreground is dominated by green grass and tall, golden-brown reeds or grasses. The middle ground shows a mix of green fields, trees, and the rooftops of a town. The background is a vast, flat landscape stretching to the horizon.

QUESTIONS?