

The Benefits of Solar for Climate, Air Quality, & Health

Presented by Tracey Holloway, Ph.D

hollowaygroup.org



WEATHER

Air Quality Advisory issued for northeast Ohio for unhealthy air levels

The quality of the air across northeast Ohio will be unhealthy on Friday.

HEALTH

Hot Weather, Pollution Fuel Unhealthy Air Conditions in Chicago

Kristen Thometz | July 18, 2019 2:04 pm



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WEATHER

Air quality health advisory in effect Monday for Long Island

By **Denise Civiletti** - Jul 29, 2019, 12:11 pm



Code Orange Air Quality Alert In Effect For Metro Atlanta

A Code Orange Air Quality Alert was issued for Metro Atlanta on Monday. The outdoor air quality is likely to be unhealthy for some people.

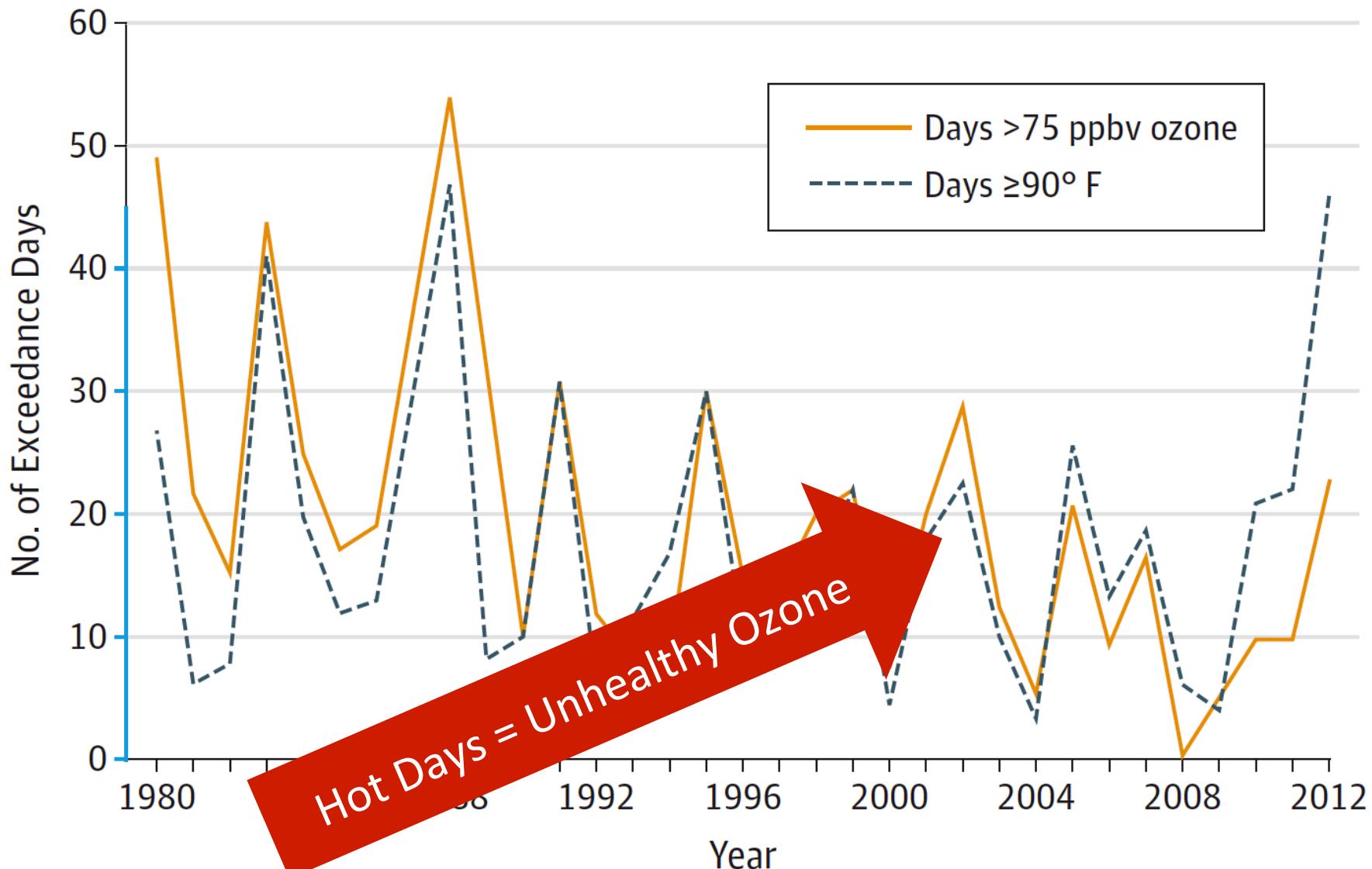
By Kathleen Sturgeon, Patch Staff
Jul 29, 2019 10:36 am ET | Updated Jul 29, 2019 10:37 am ET

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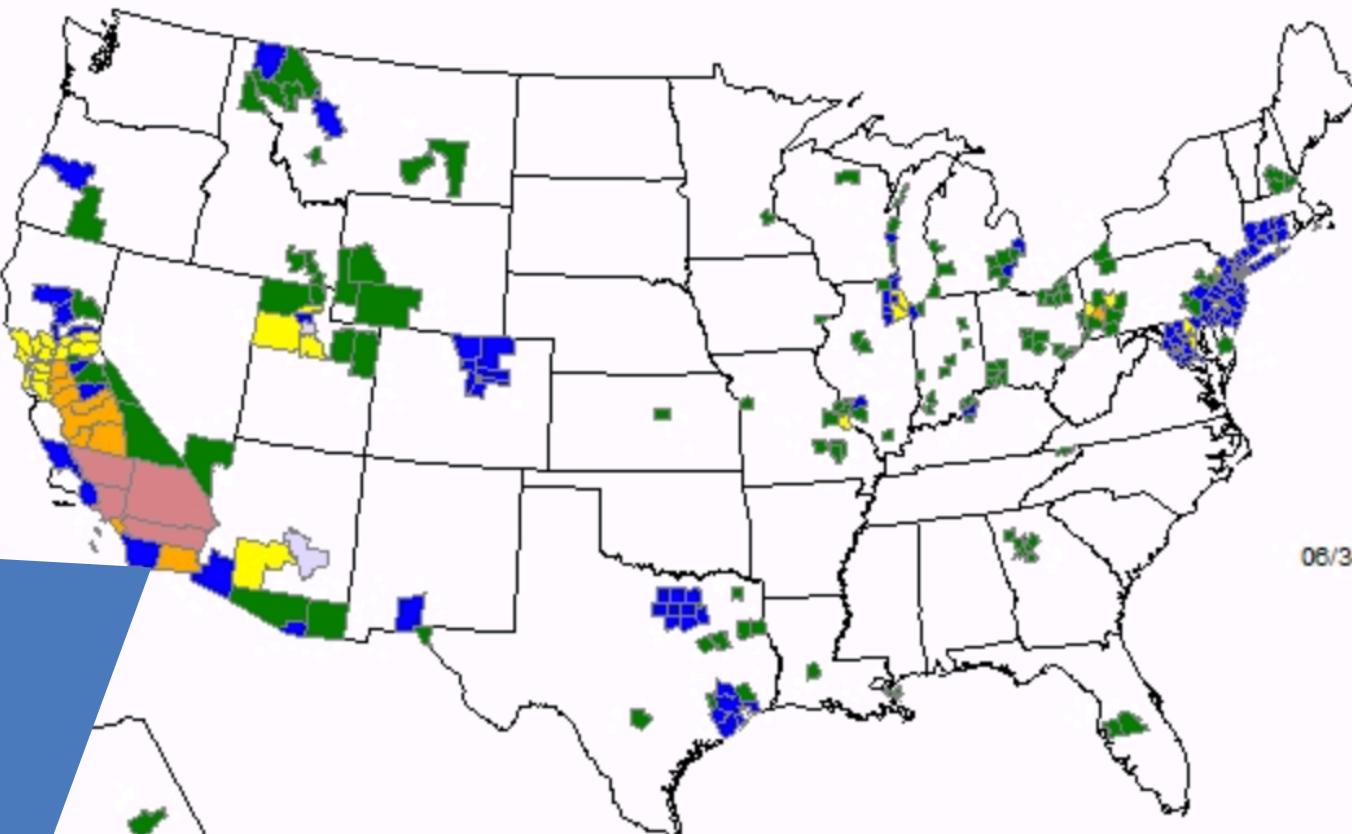


Chicago, Illinois



Counties Designated "Nonattainment"

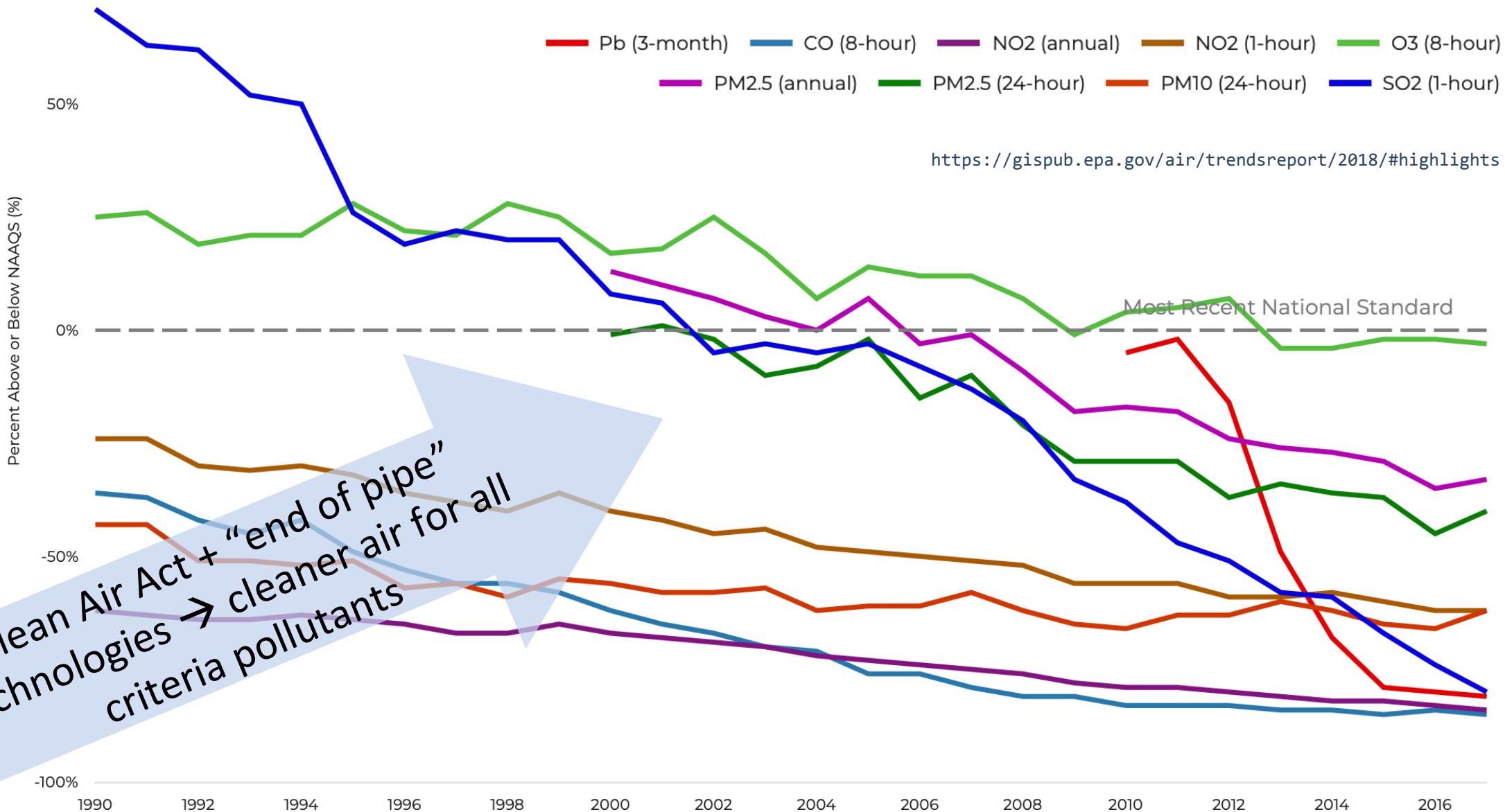
for Clean Air Act's National Ambient Air Quality Standards (NAAQS) *



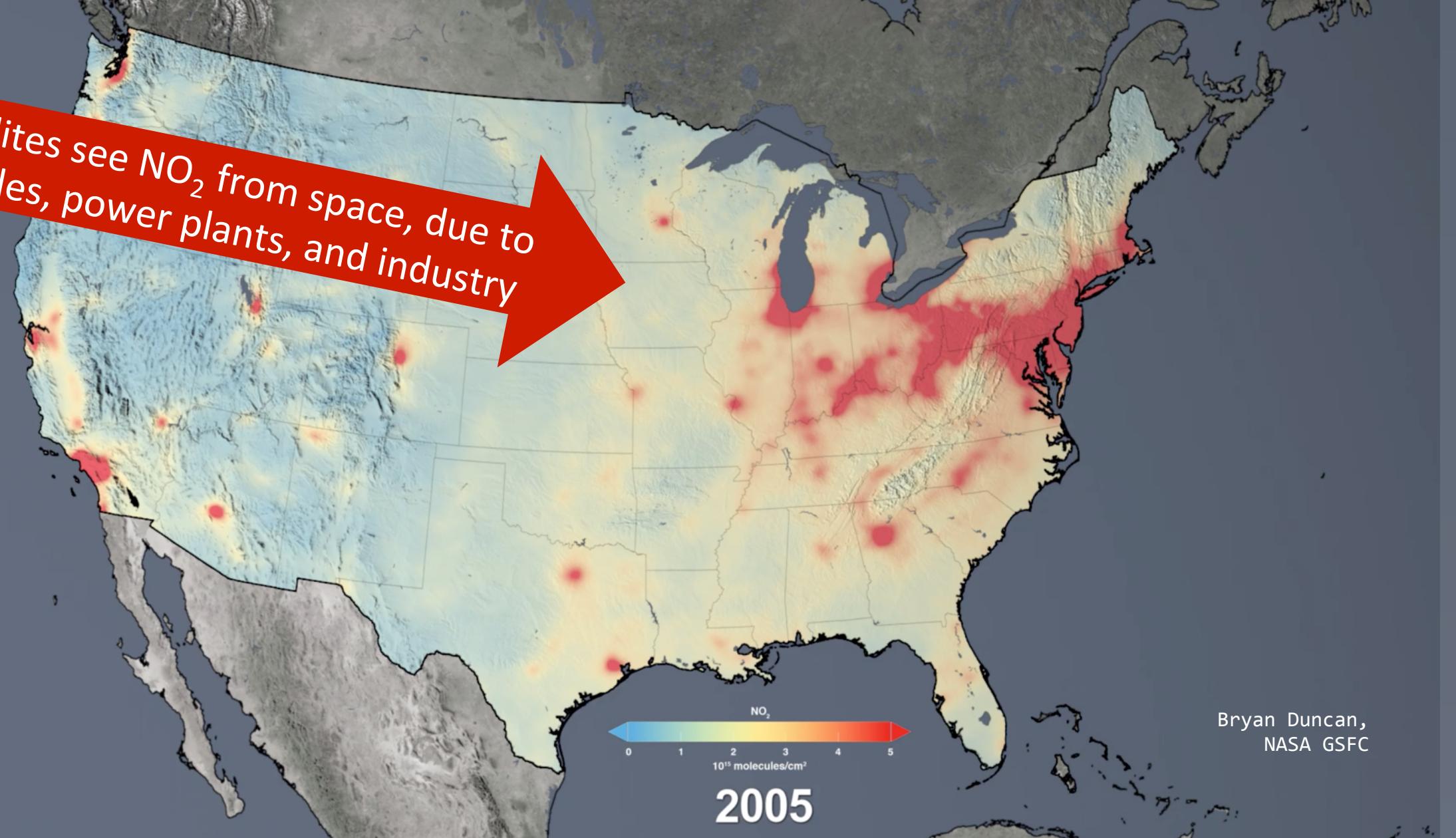
Nearly 50% of U.S.
population breathes
unhealthy air

Legend **

- County Designated Nonattainment for 6 NAAQS Pollutants
- County Designated Nonattainment for 5 NAAQS Pollutants
- County Designated Nonattainment for 4 NAAQS Pollutants
- County Designated Nonattainment for 3 NAAQS Pollutants
- County Designated Nonattainment for 2 NAAQS Pollutants
- County Designated Nonattainment for 1 NAAQS Pollutant



*Satellites see NO₂ from space, due to
vehicles, power plants, and industry*



Bryan Duncan,
NASA GSFC

2005

... and see the major clean-up in air pollution due to policies & technology



2016

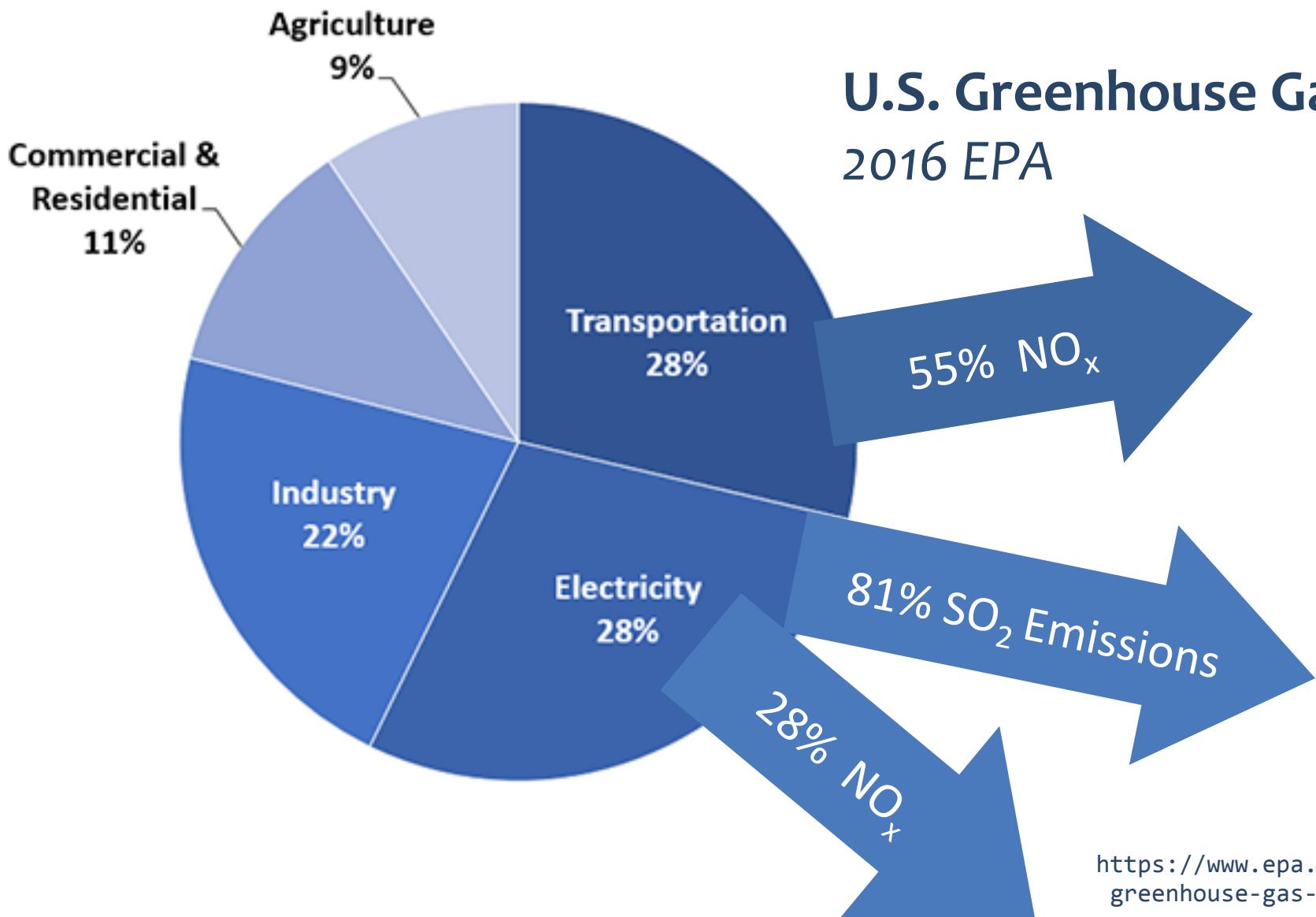
Bryan Duncan,
NASA GSFC

The background of the slide is a photograph showing a hazy, yellow-tinted view of a city skyline. In the foreground, there are several tall, thin utility poles with multiple cross-arms and wires, characteristic of an electrical grid. The sky is overcast and has a hazy, orange or yellow hue, suggesting smog or pollution.

How does solar energy...

- Reduce emissions from fossil fuel combustion?
- Improve air quality, especially on the dirtiest days?
- Help states meet air quality standards?
- Improve public health?

[https://www.publicdomainpictures.net/en/view-image.php?
image=17407&picture=smog-and-electric-lines](https://www.publicdomainpictures.net/en/view-image.php?image=17407&picture=smog-and-electric-lines)



U.S. Greenhouse Gas Emissions 2016 EPA

<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#colorbox-hidden>

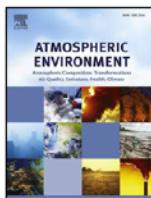


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Potential air quality benefits from increased solar photovoltaic electricity generation in the Eastern United States



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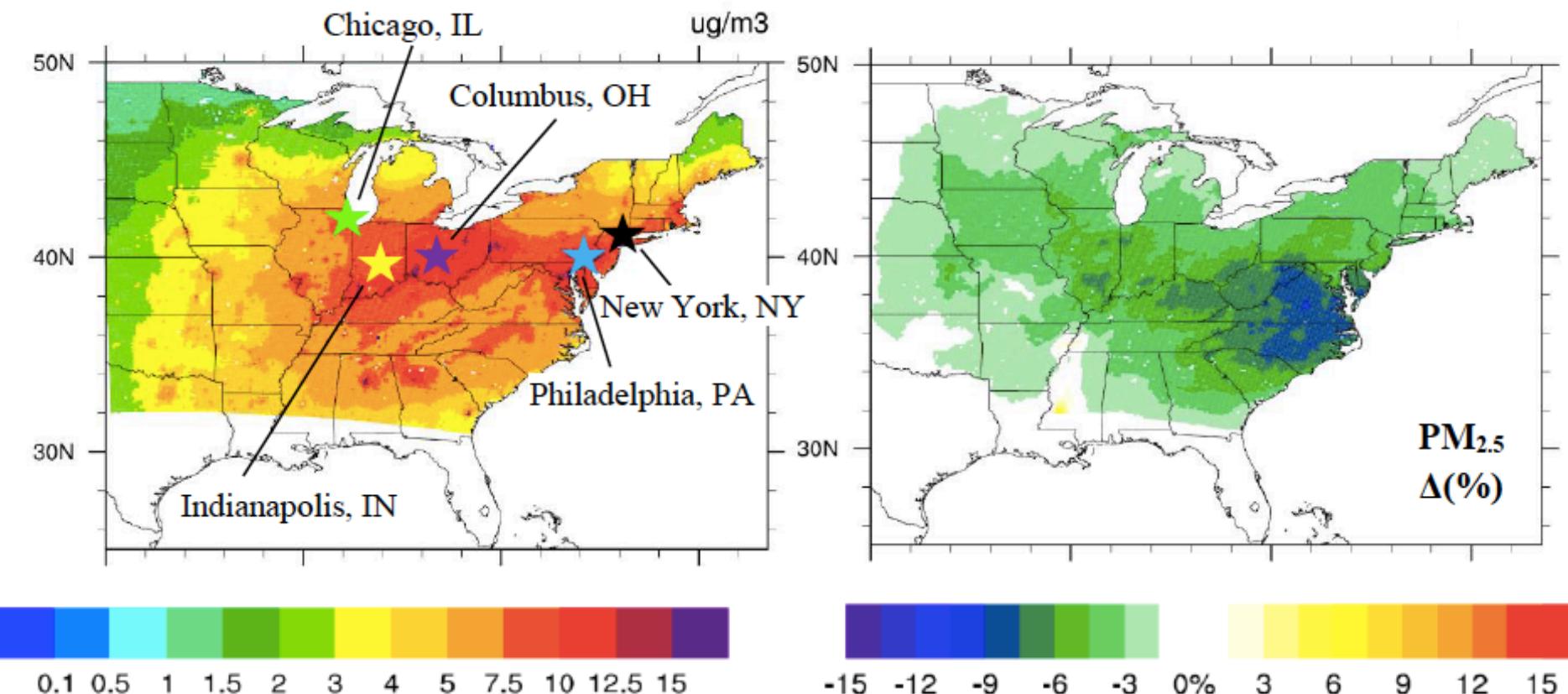
SunShot 2030 for Photovoltaics (PV): Envisioning a Low-cost PV Future

Wesley Cole, Bethany Frew, Pieter Gagnon,
James Richards, Yinong Sun, Jarett Zuboy,
Michael Woodhouse, and Robert Margolis
National Renewable Energy Laboratory

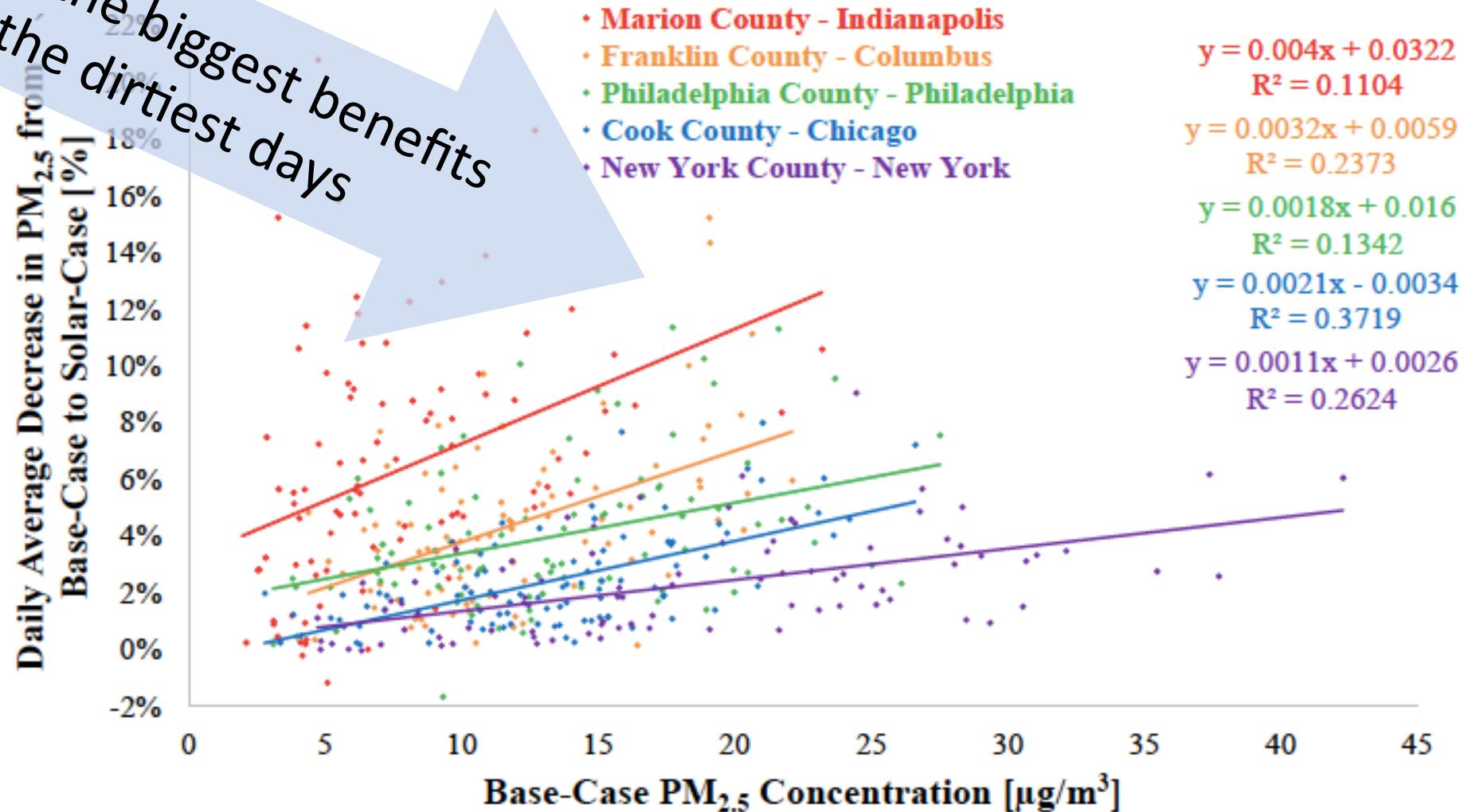
<https://www.publicdomainainpictures.net/en/view-image.php?image=9099&picture=solar-panels>

“What if....” there were more solar energy?
We modeled air pollution over the U.S. to answer that question

Left: Summer PM_{2.5} (Business-as-Usual); Right: % reduction due to 17% PV



*Solar has the biggest benefits
on the dirtiest days*





UW Study: Turning Off The Lights Reduces Both Economic, Human Costs

Reducing Pollution From Energy Production Can Have Tangible Health Impacts, Research Finds

By Mary Kate McCoy

Published: Thursday, April 4, 2019, 4:25pm

This One-Second Action Could Save Someone's Life

A quick and easy act could have ripple effects on health and the environment.

The cost of cool

Psychology Today

Air-conditioners do great good, but at a high environmental cost

The rapid growth in their use makes it urgent to limit the damage

The Economist

Pollution Peaks When Temperatures Top Out

SCIENTIFIC AMERICAN

07/13/2018

Under Climate Change, The AC Giveth And The AC Taketh Away



sci
FRI

Solar benefits health and air quality
immediately... *A powerful motivation for
low-carbon energy*

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