



Dual Use Solar in New Jersey – A National Perspective

Rutgers Agrivoltaics Roundtable

May 24, 2022

Source: PASA Sustainable Agriculture



American Farmland Trust

SAVING THE LAND THAT SUSTAINS US



PROTECT FARMLAND

We lose 2,000 acres of farmland a day across the US: this has serious implications for food production, our environment, and the next generation of farmers. Climate change and extreme weather are compounding risks to farmland and soil health.



PROMOTE SOUND FARMING PRACTICES

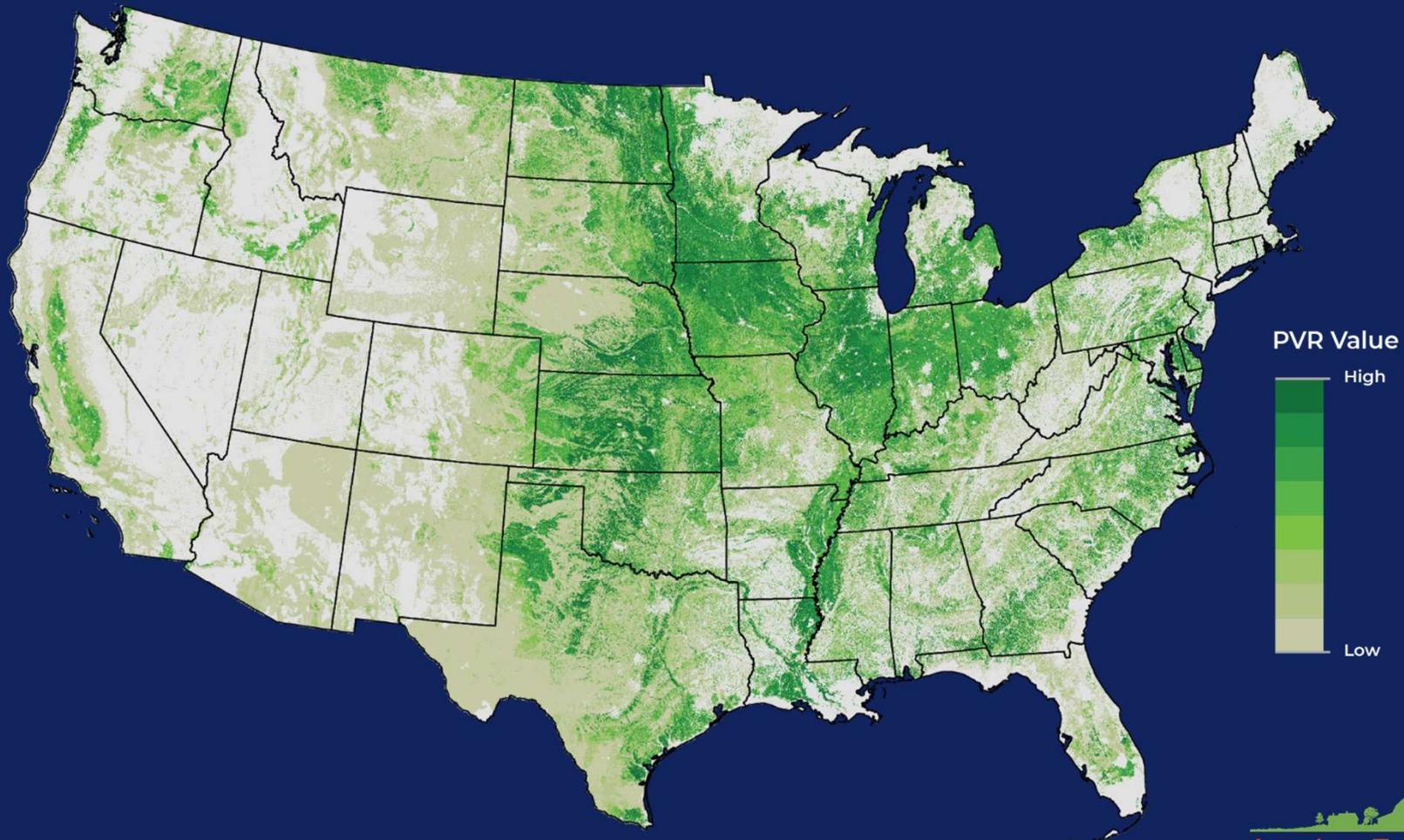
We help farmers with the difficult transition to more regenerative farming practices that rebuild soil health, sequester carbon, protect our waterways, and boost income.



KEEP FARMERS ON THE LAND

A seismic transfer of farmland is looming. More than 40% of American farmland is owned by seniors aged 65 and older. AFT provides guidance, tools, and partnerships that connect current landowners with diverse, new farmers to ensure a sustainable farming future.

Productivity, Versatility, and Resiliency (PVR)





FARMS UNDER THREAT: **THE STATE OF THE STATES**

Released
May 2020

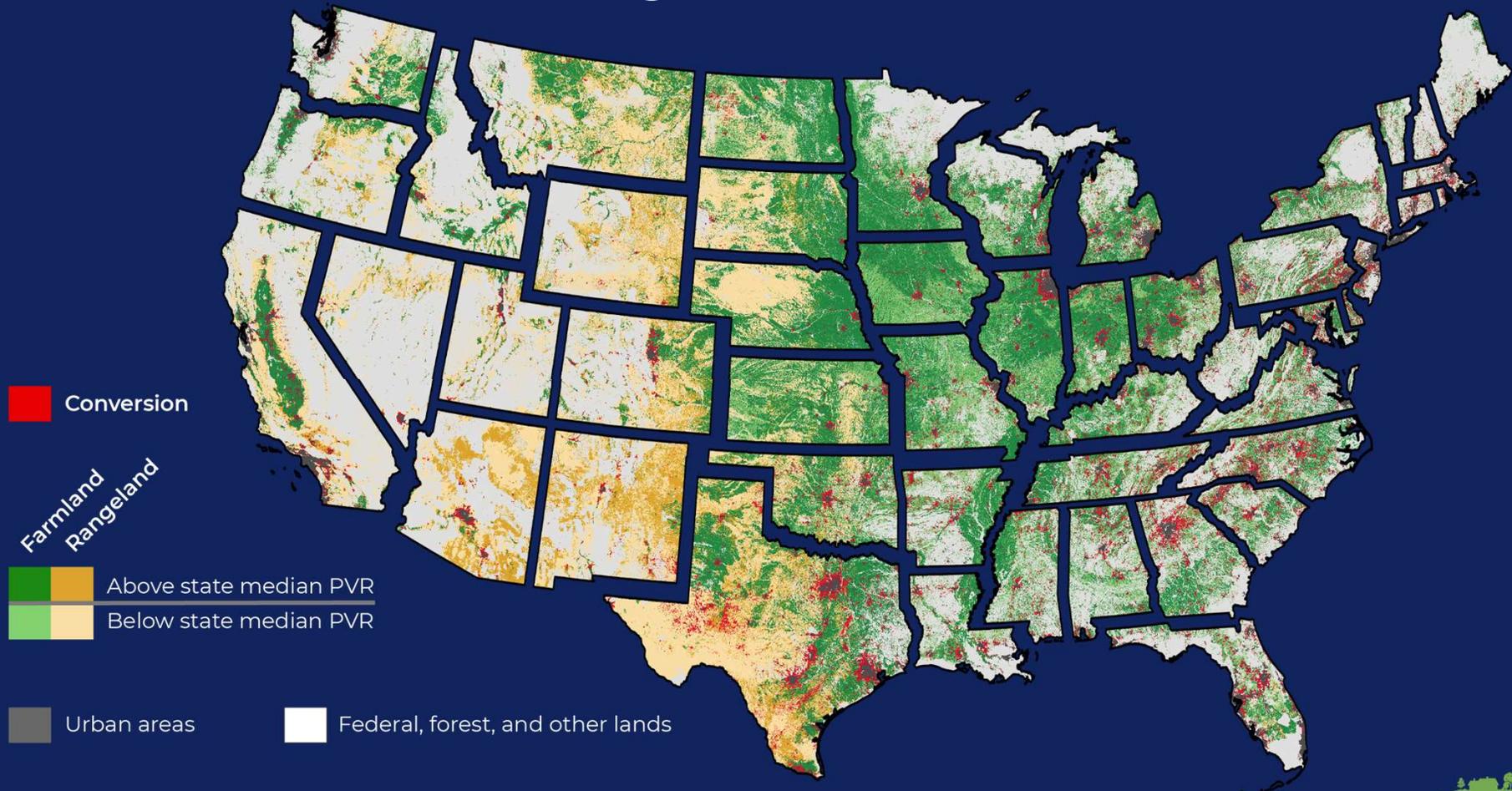
11 Million Acres of
Farmland
Converted or
Compromised
(2001 – 2016)

New Jersey:
70,900 acres of
impacted
farmland

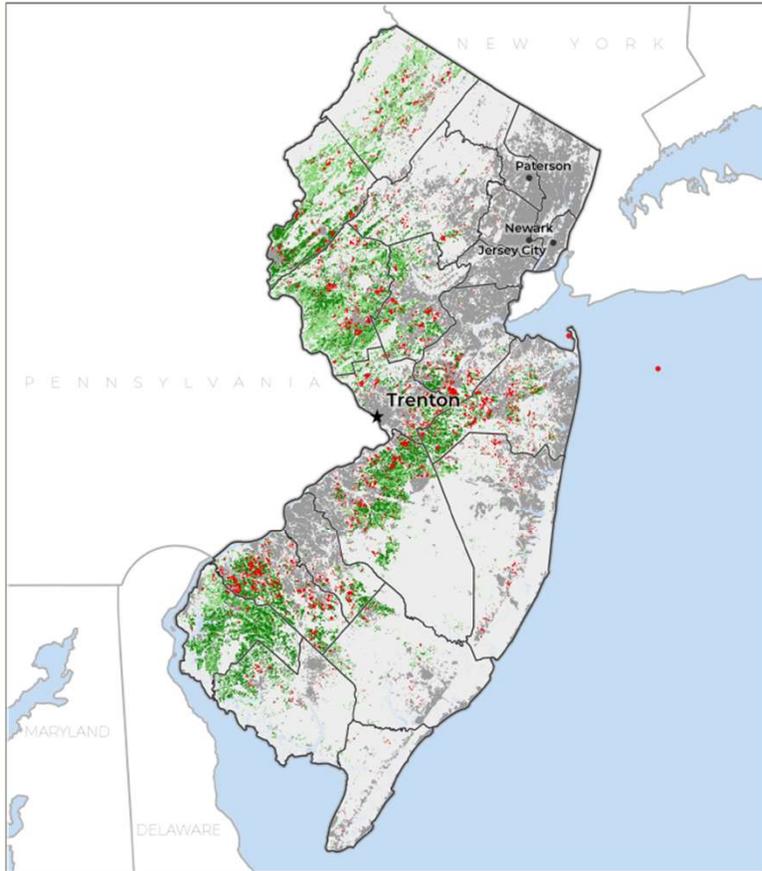

American Farmland Trust



Development Threatens Each State's Best Agricultural Land



AGRICULTURAL LAND CONVERSION 2001-2016



Conversion of non-federal farmland to UHD and LDR land uses from 2001-2016. The threat to working farms and ranches is pervasive, often claiming the most productive, versatile, and resilient lands.

- Conversion of agricultural land to UHD and LDR land uses
- Farmland* that is:**
 - Above state median PVR**
 - Below state median PVR
- Urban areas
- Federal, forest, and other lands

What's at stake?

▶ 782,300 acres of agricultural land remain¹



- CROPLAND:** 447,700 acres
- PASTURELAND:** 131,900 acres
- WOODLAND:** 202,700 acres

▶ \$1.1 billion earned from cash receipts in 2017²

- \$190.5 million from local food³
- \$530.9 million from agricultural exports⁴

▶ 70,900 acres were converted—enough land to generate \$99 million in annual revenue²

▶ New Jersey's top 3 agricultural products:²

- Nursery and Greenhouse \$498.1 million
- Vegetables \$222.5 million
- Berries \$100.3 million

▶ 16,900 producers and 35,900 farm laborers on 9,900 farms²

▶ 6 times as many producers over 65 as under 35 years old²

New Jersey Snapshot



Farms Under Threat 2040

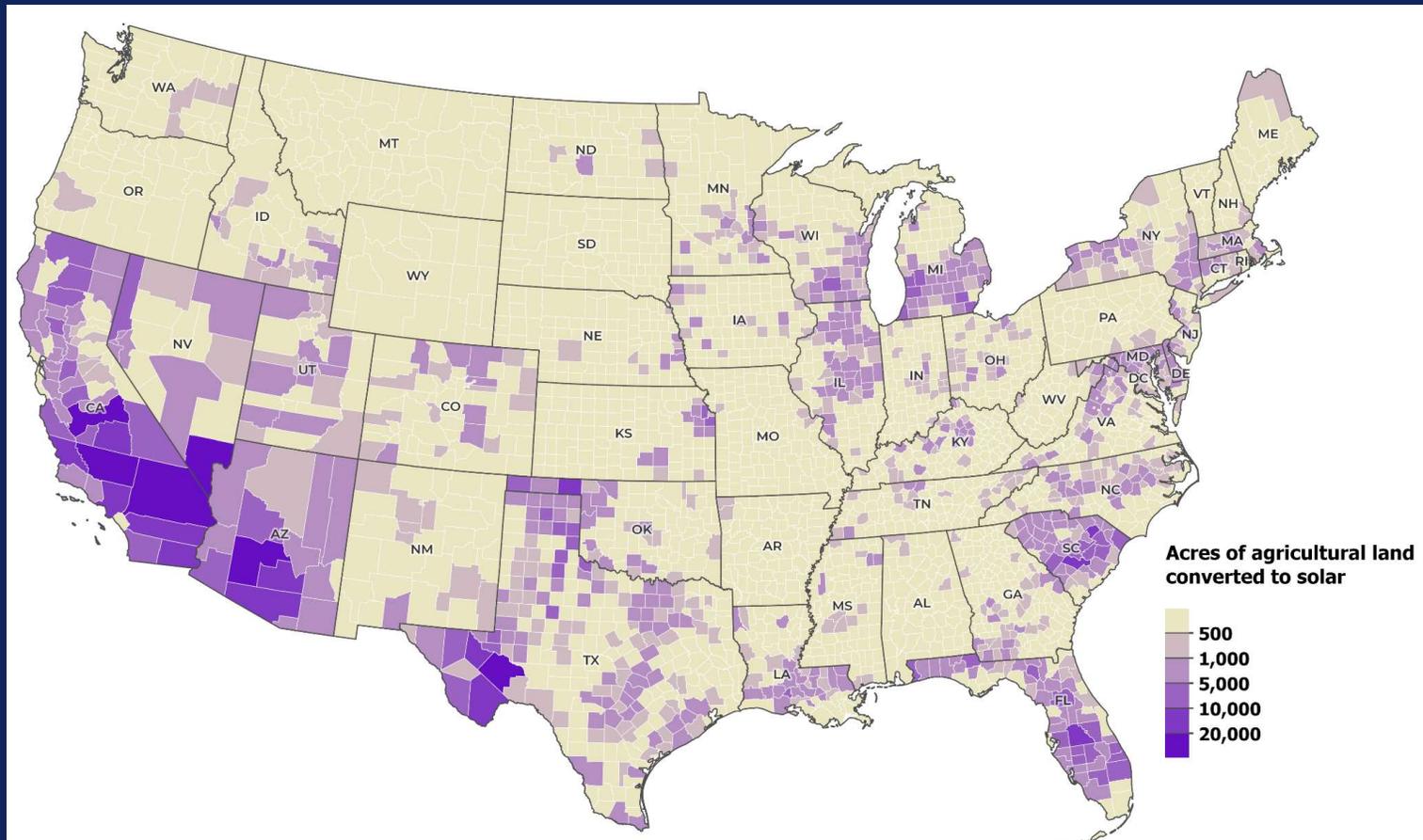
CHOOSING AN ABUNDANT FUTURE

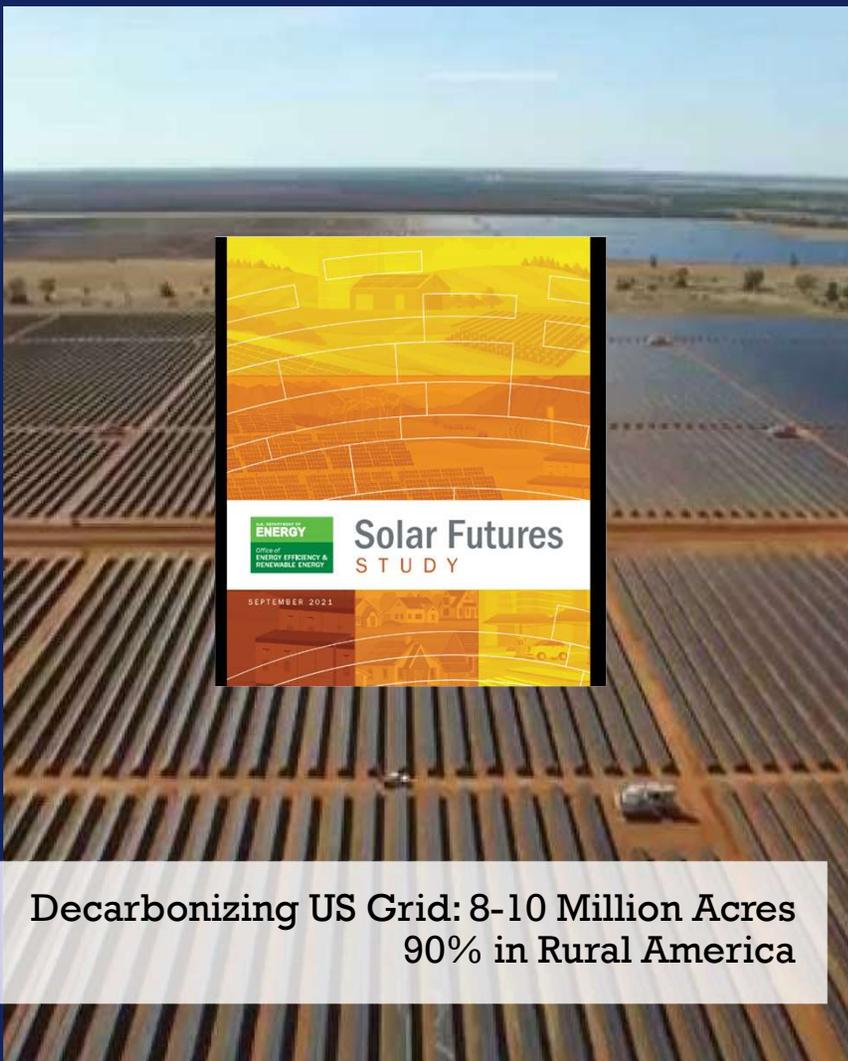



American Farmland Trust
SAVING THE LAND THAT SUSTAINS US

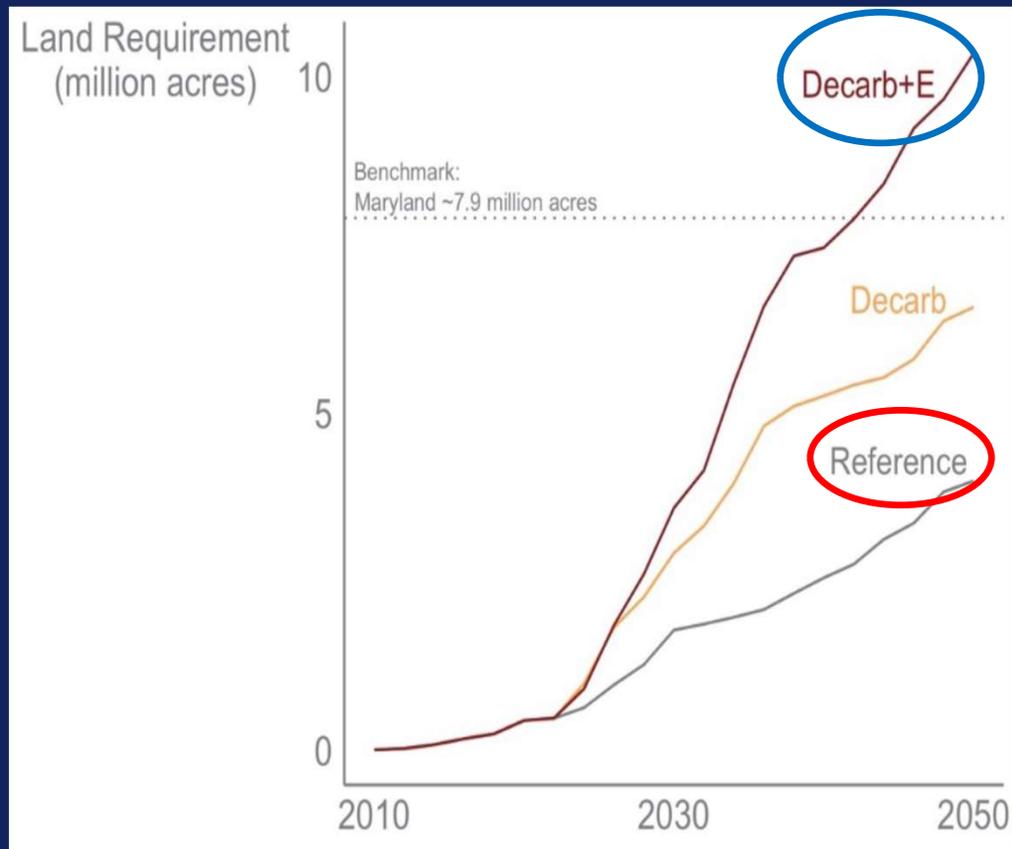
Upcoming Report (6/29/22) → Includes Solar Projections

Projected Solar Footprint in 2040

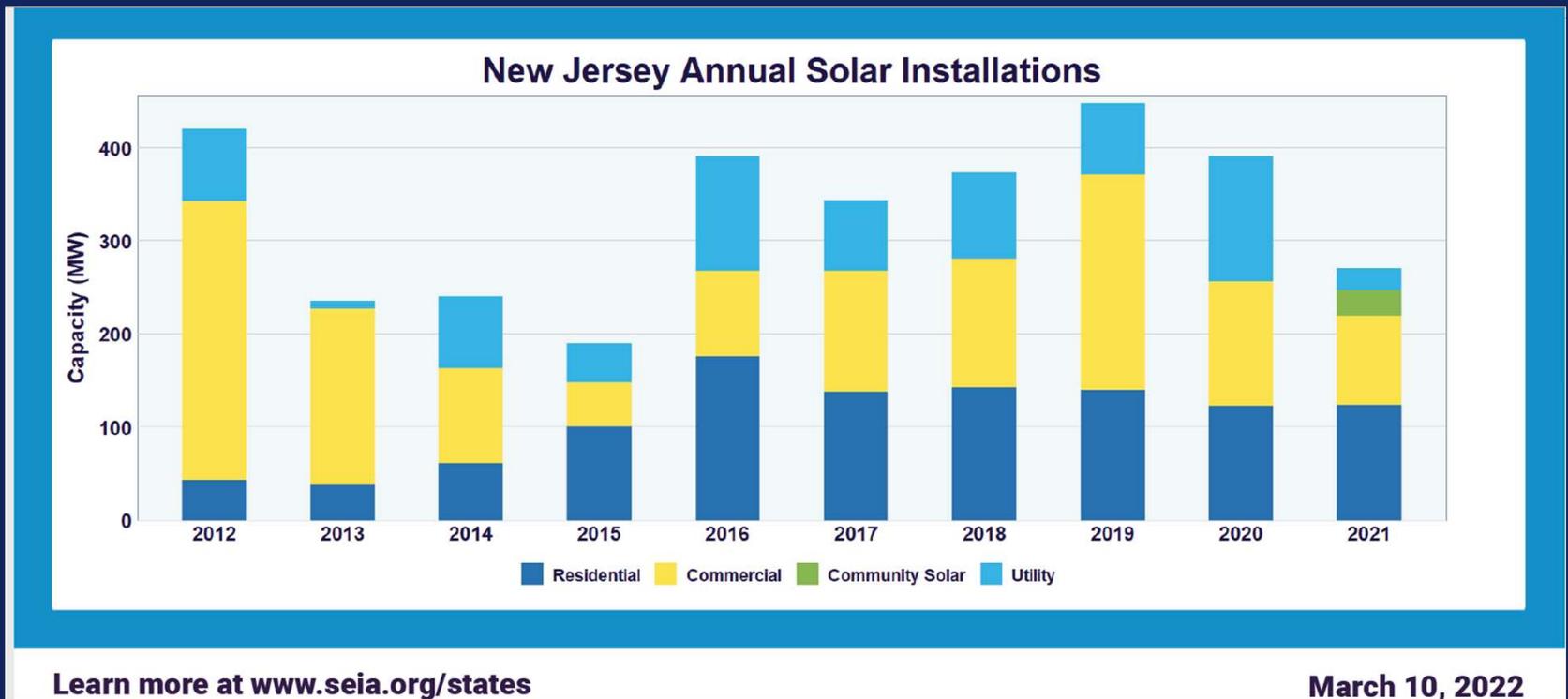




DOE Solar Futures Study



Decarbonizing US Grid: 8-10 Million Acres
90% in Rural America



Solar Act of 2021 – Successor Solar Incentive Program
Double NJ solar capacity by 2026 →
3,750 MW of new capacity.



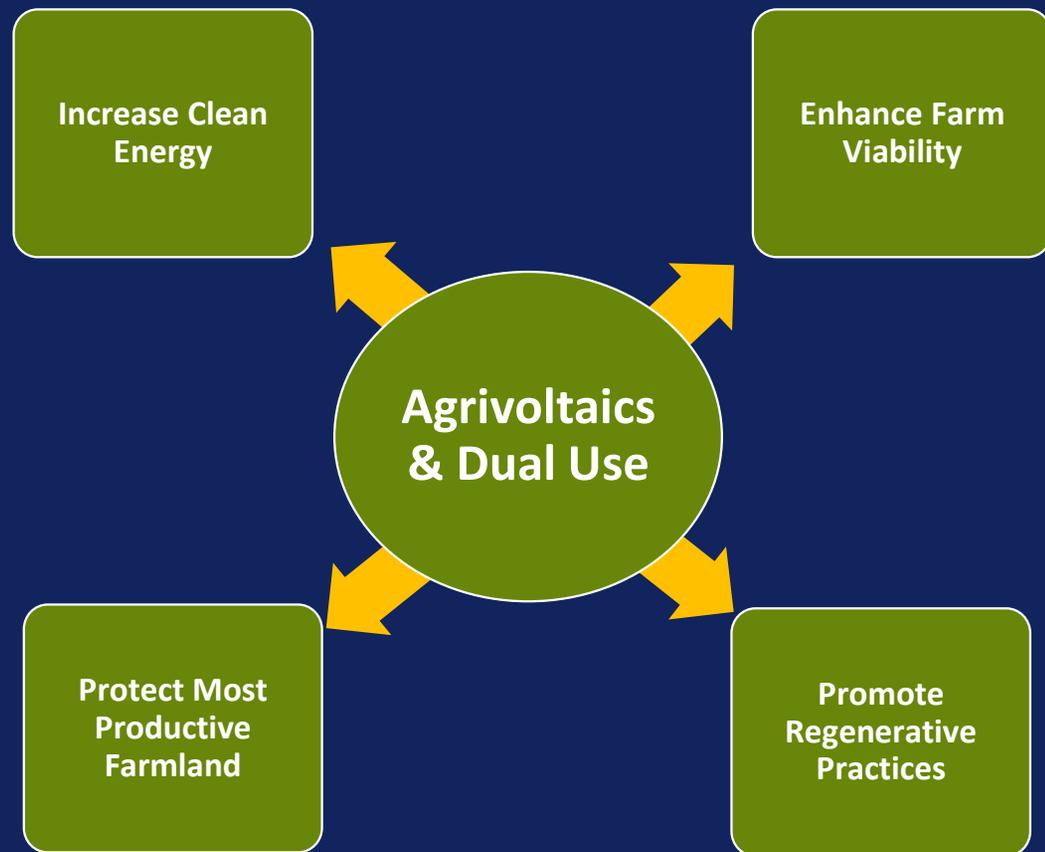
AFT's Smart Solar Principles

1. Maximize solar siting on **disturbed**, contaminated, and marginal lands and on rooftops.
2. Minimize conversion of our **best agricultural lands** to conventional ground-mounted solar.
3. Protect or enhance **soil health** for solar projects on agricultural land.
4. **Optimize agrivoltaics / agricultural dual-use** solar on lands well-suited for agriculture.
5. Ensure that solar built on agricultural lands prioritizes **farmer interests**.
6. Promote an equitable, ethical, and **inclusive process** for solar development.



Potential of Dual Use

Agriculture + Solar PV, Optimized to Work Together.



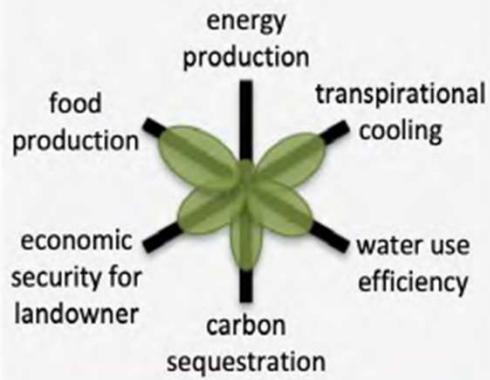
Integrating Agriculture + Solar



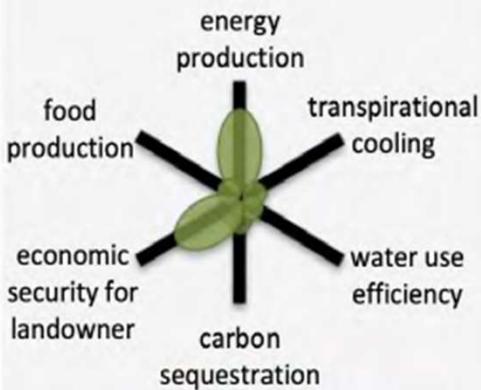
Photos: Fraunhofer ISE



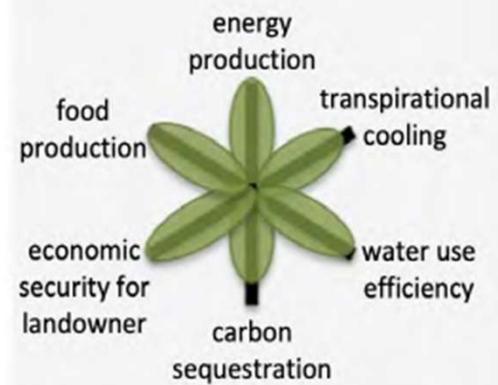
Photos: Silicon Ranch, AFT, Jacks Solar Garden



**Agriculture
system**



**Photovoltaic
system**



**Co-located
'agrivoltaic' system**

Adapted from Gomez-Casanovas N et al (2021),
STOTEN, 799, doi.org/10.1016/j.scitotenv.2021.149466



Best Practices → Focus on Farm Outcomes & Optimize Land Use Efficiency

Establish Agricultural Compatibility through crop trials and grazing studies / Specialty crops

Develop ready-to-go designs that maintain long-term agricultural compatibility, minimize added Cap Ex

Determine best construction and installation methods that protect soil productivity, long term potential

Implement regenerative practices that improve land's resiliency and potential for carbon sequestration

Improve animal welfare and health through smart design, including shade, water, fencing, farmer access

Increase site biodiversity through microclimates which support varying species

Support wildlife habitat, mobility, and migration through innovative design and integrating habitat



Adapt + Scale Agrivoltaics Across the Agricultural Landscape





Solar Funding OPPORTUNITY

U.S. DEPARTMENT OF
ENERGY | Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY
SOLAR ENERGY TECHNOLOGIES OFFICE

Foundational Agrivoltaic Research for Megawatt Scale (FARMS)

Office: Solar Energy Technologies Office

FOA number: DE-FOA-002697

Link to apply: [Apply on EERE Exchange](#)

FOA Amount: \$8 million

New Funding Announced May 5th



Resources

[Fraunhofer ISE / AFT webinar](#)

[Smart Solar on Farmland:
NY Report \(2022\)](#)

[AFT Smart Solar and Dual Use \(FIC\)](#)

[Farms Under Threat Report \(2020\)](#)

[AgriSolar Clearinghouse \(NCAT\)](#)



Thank You.

Ethan Winter, Northeast Solar Specialist
ewinter@farmland.org | (518) 732-6925