Crafting Low-Cost Ordinances to Promote Solar Energy Growth

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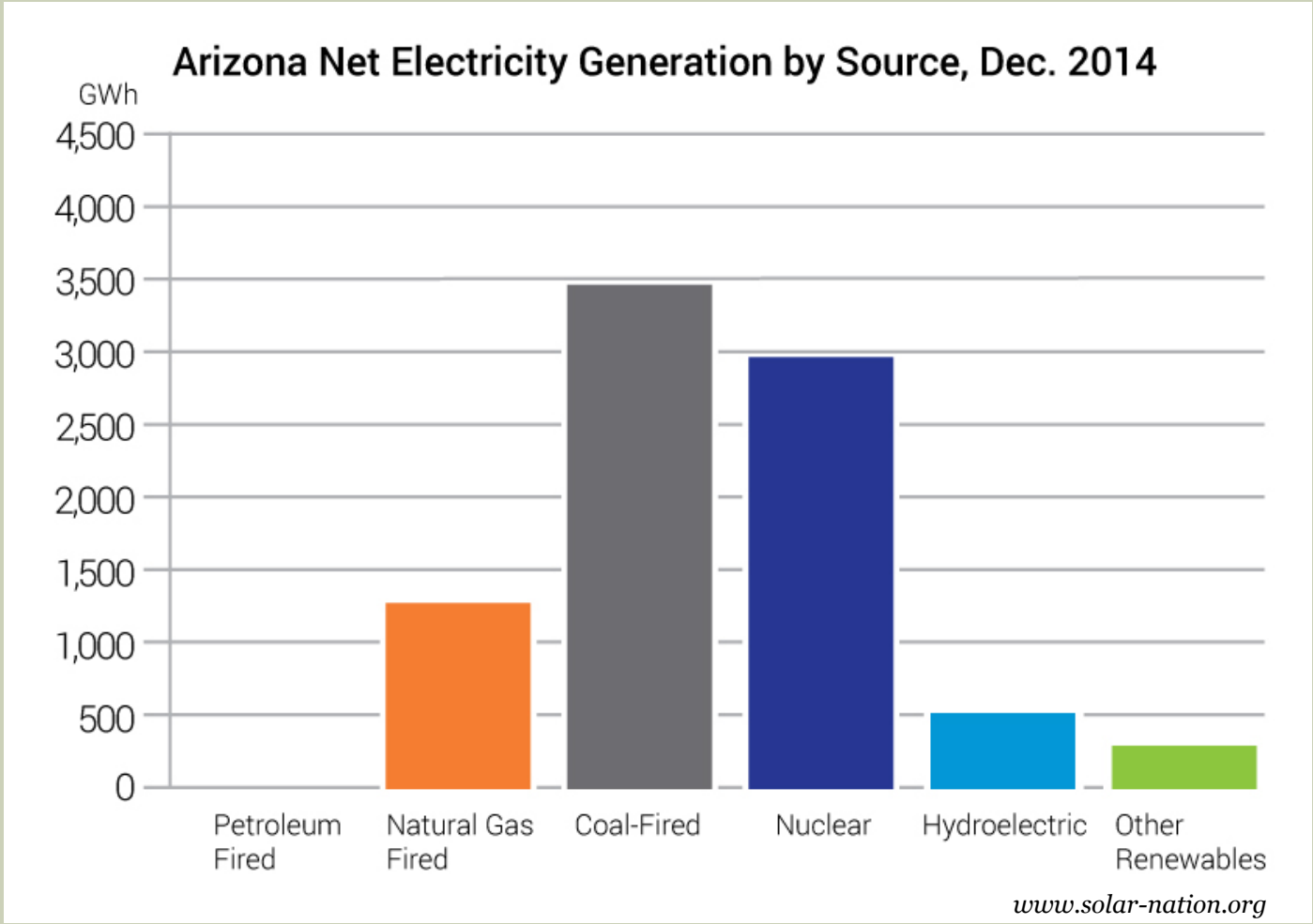
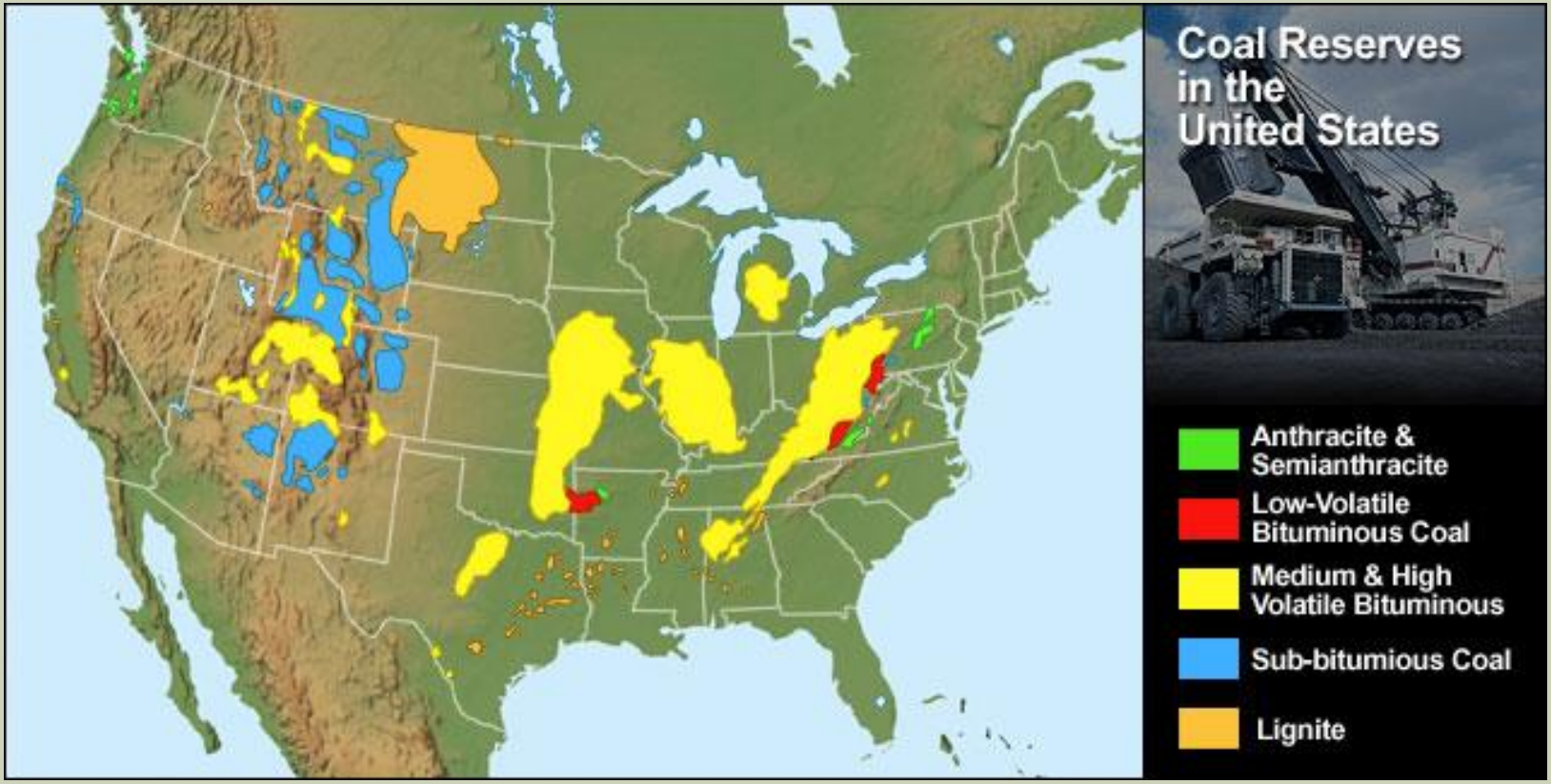
SCN SOLAR & EFFICIENCY WORKSHOP

Arizona's Existing Energy Mix

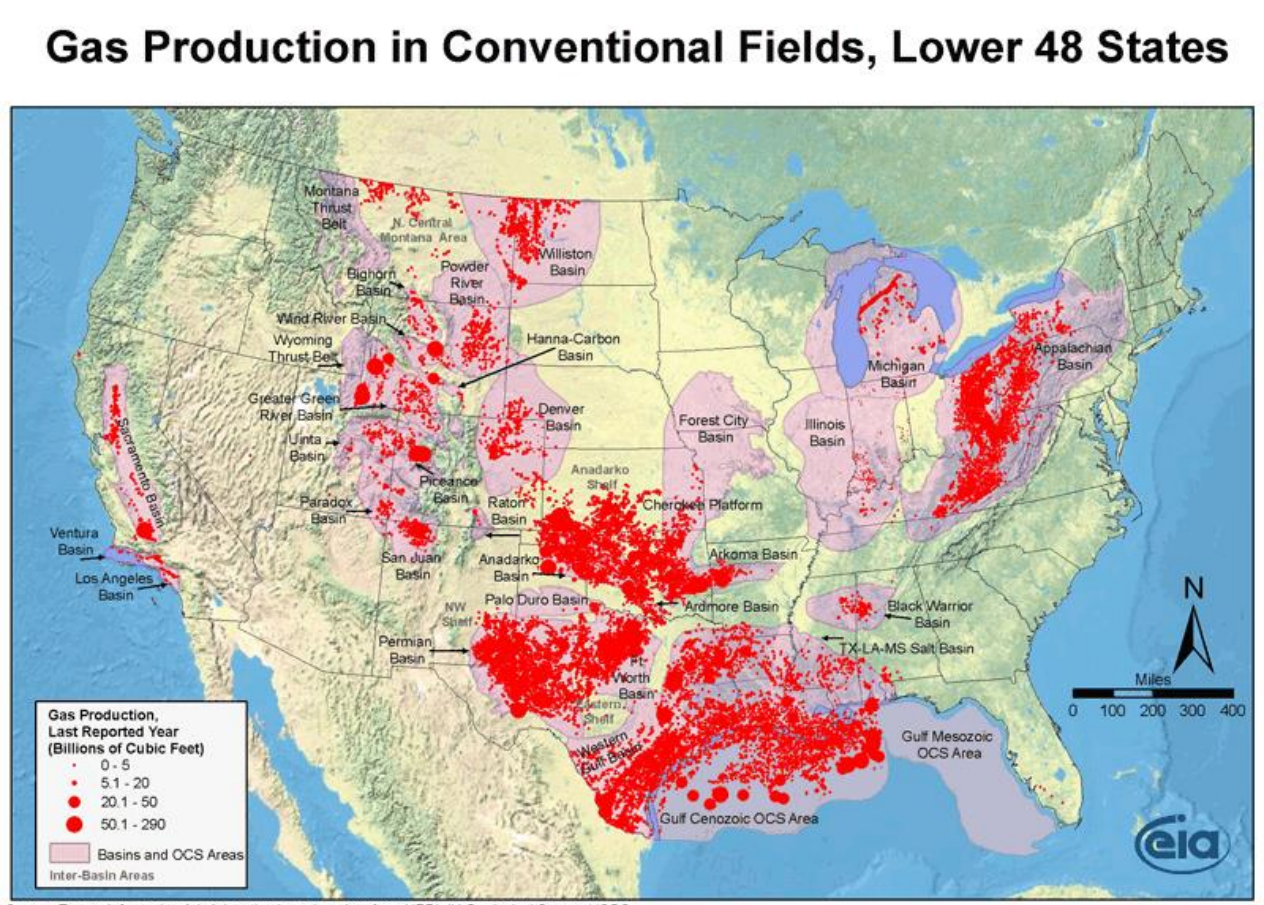


Arizona: Limited Coal Resources



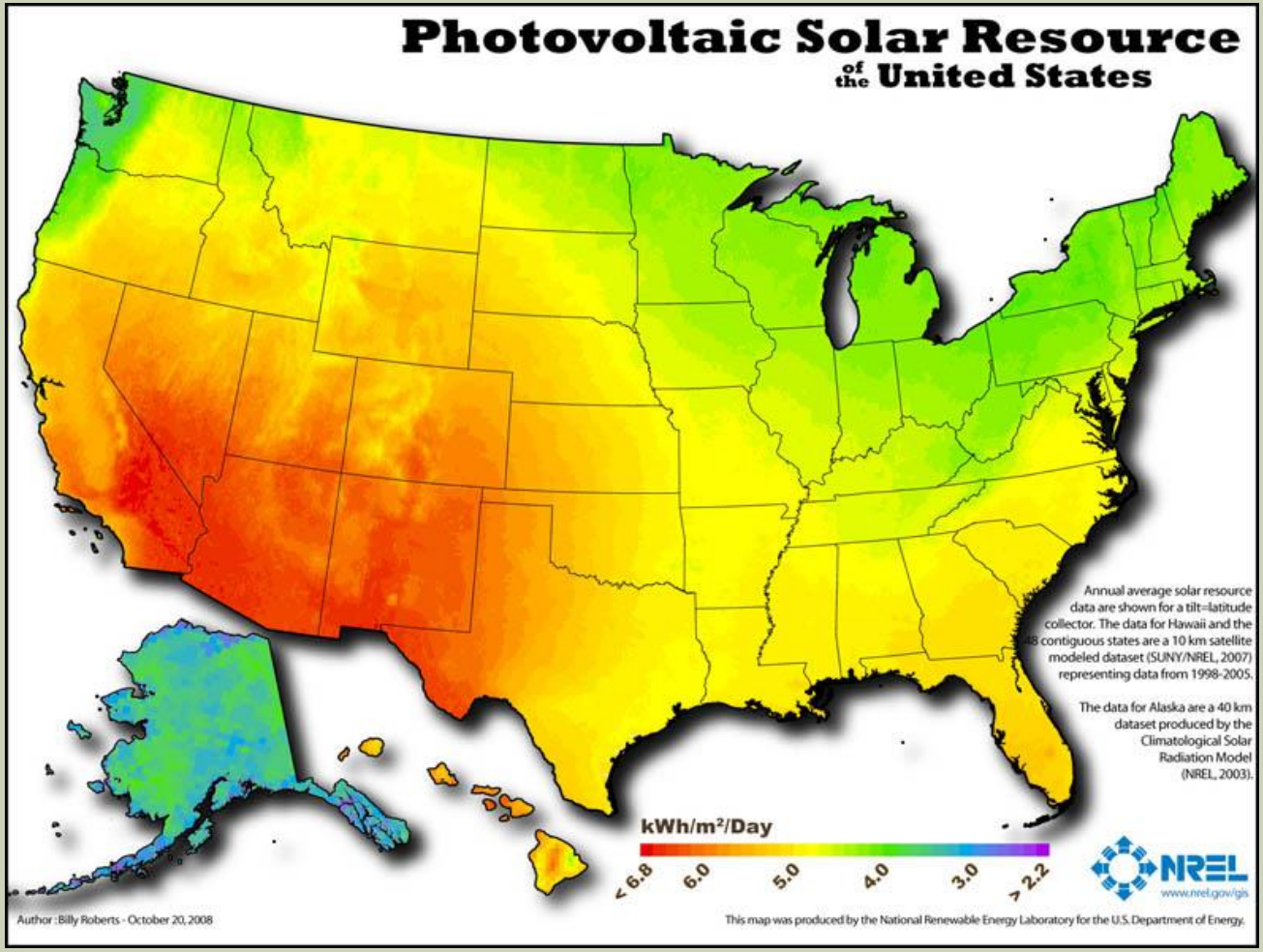
www.teachcoal.org

Arizona: Limited Natural Gas Resources

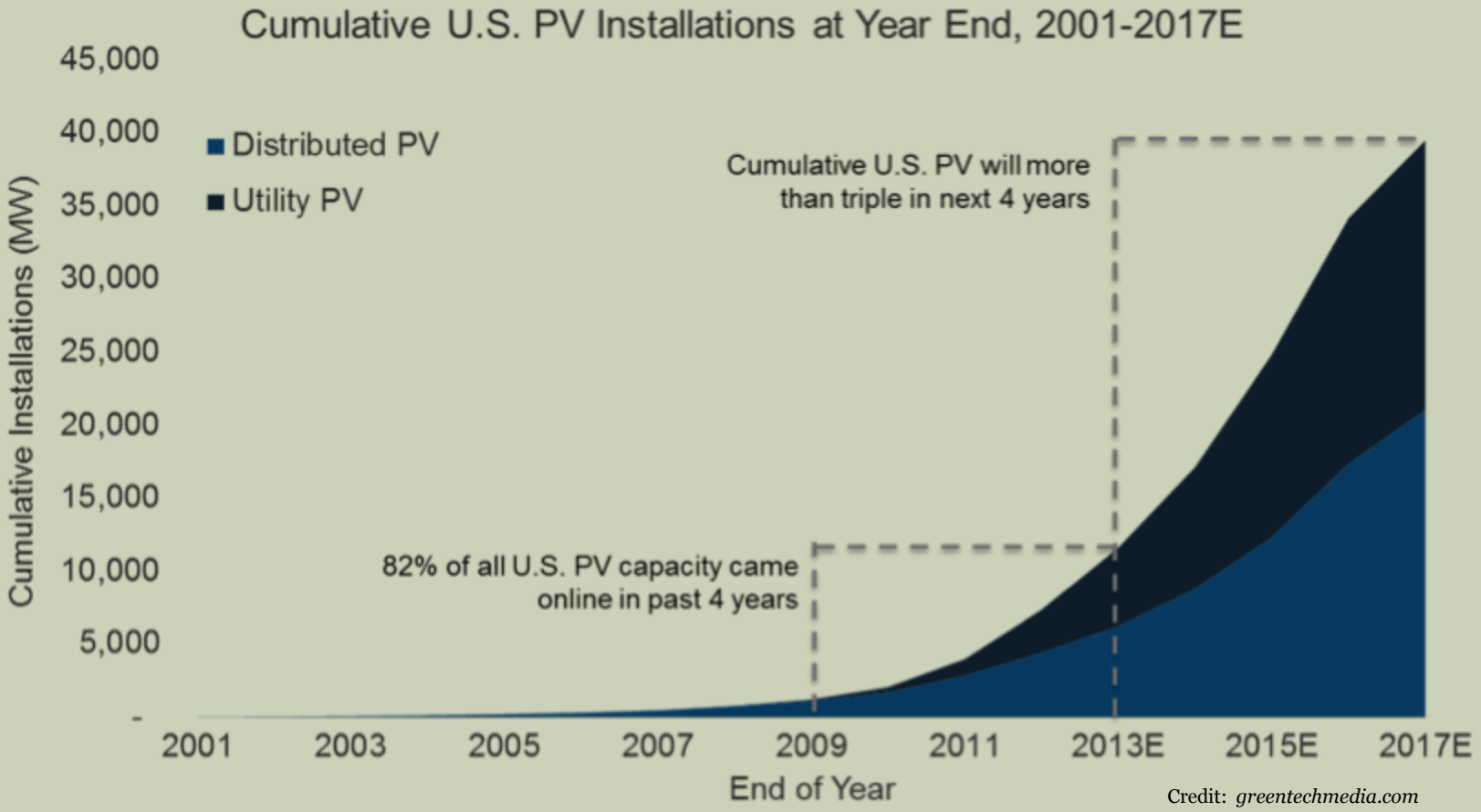


Source: Energy Information Administration based on data from HPDI, IN Geological Survey, USGS
Updated: April 8, 2009

Arizona Solar Energy Resources



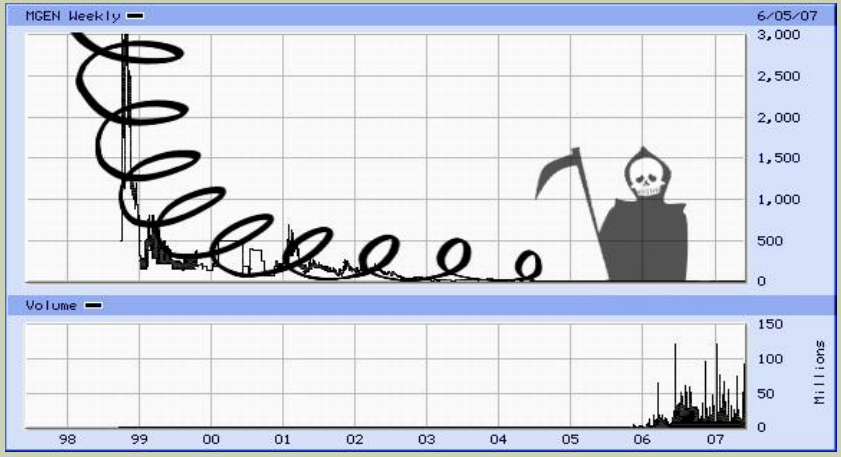
Rapid Growth in Solar PV Installations



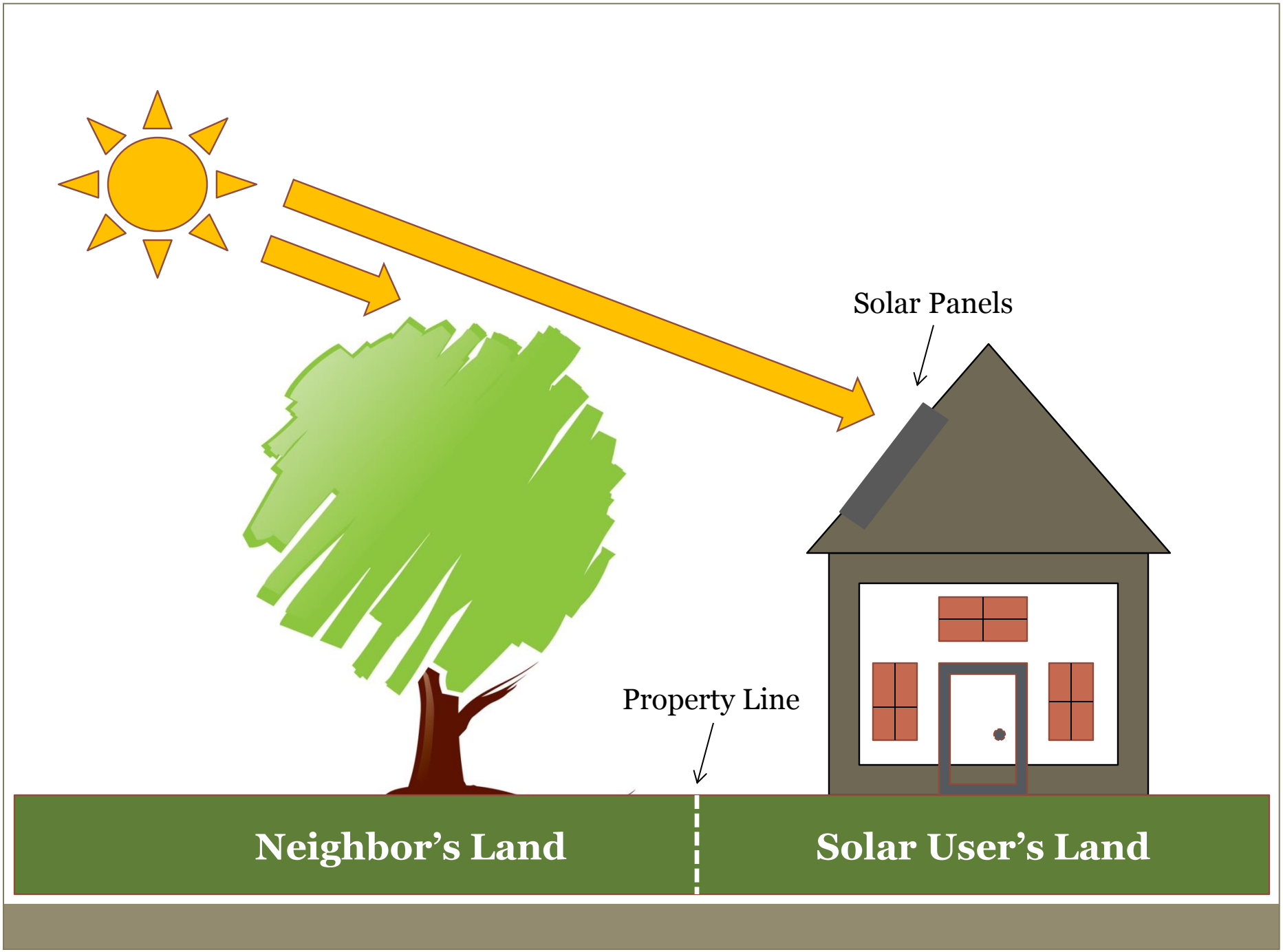
Credit: *greentechmedia.com*

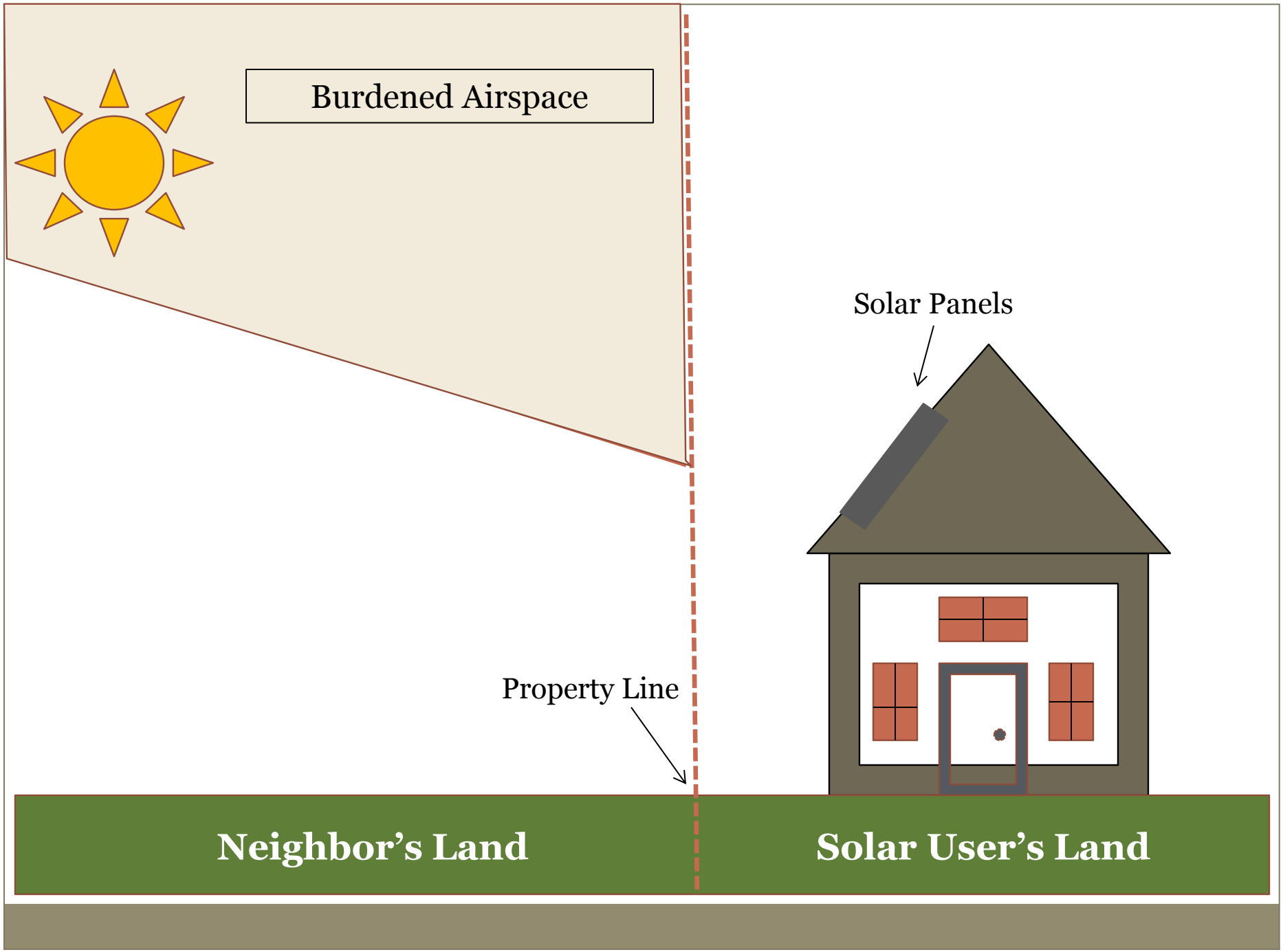
Utilities' "Death Spiral" Narrative

- As more customers switch to solar, **utilities sell less power**.
- Consequently, **utilities must raise their rates** to spread their high fixed costs over fewer sold kilowatt hours.
- These higher electricity rates make solar power **even more cost-competitive**, motivating even more customers to get solar panels.



hotstocked.com


Solar Panels
Property Line
Neighbor's Land
Solar User's Land


Burdened Airspace
Solar Panels
Property Line
Neighbor's Land
Solar User's Land

Sunlight Law Prior to the 1970's

- The Old English "Doctrine of Ancient Lights"
- United Fee Ownership Rule (*Ad Coelem* doctrine)
- *Fontainebleau* Case (1959): No implied right to sunlight under US Law

Modern Approaches to Solar Access

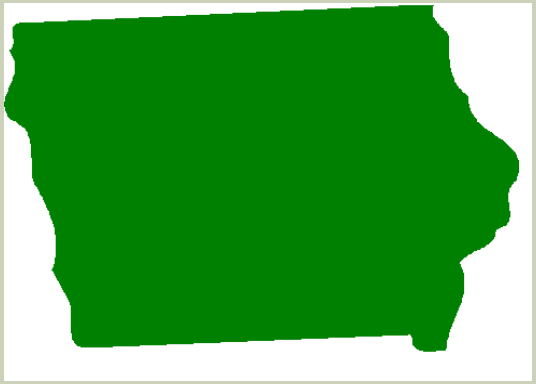
1. **"Solar Rights" Statutes**
   - Wyoming & New Mexico
2. **Zoning/Setbacks**
   - Ashland, Oregon (solar setbacks)
   - Boulder, Colorado (solar fences)
3. **Nuisance Law**
   - Classifying solar panel shading as a public or private nuisance
4. **<u>No</u> statutory solar access protection**
   - ***majority approach***; relies upon voluntary covenants/easements

Protecting Solar Access: The Iowa Approach

<u>Under Iowa's statute</u>:

1. Neighbors are not generally liable for shading solar panels, ***<u>however:</u>***

2. If a solar panel user is unable to negotiate a voluntary solar access easement, the local government can compel the neighbor to ***sell*** the easement for its market value.



Advantages of the Iowa Approach

- **Consistent with existing law re: airspace rights**
  - Does not take neighbors' airspace rights without compensation
- **Addresses the solar access problem**
  - Provides a guaranteed means of getting solar access protection
  - Encourages rooftop solar energy development
- **Promotes the efficient use of scarce airspace**
  - Rational solar users will only elect to purchase solar access easements when they are the highest-valued use of the space.

Crafting a Solar Access Ordinance

- **Create a solar easement application process**
  - Statements re: good faith negotiations & minimized neighbor impact
- **Provide for notice and a hearing**
- **Limit easement duration to a solar panel's useful life**
- **Exempt neighbors' existing vegetation/structures**
- **Require applicants to bear some city costs**

Development Exactions

Exaction – a condition to development approval requiring the developer to provide something to a local government.

<u>Exactions can be in the form of</u>:

- Required improvements (sidewalks, public art, etc.)
- Property *dedications* (for roads, parks, etc.)
- Monetary exactions (cash)
- *Linkages* (*e.g.*, day care for office buildings, affordable housing requirements, etc.)

Promoting Solar Energy through the Development Approval Process

Development approvals could be conditioned upon :

(1) installation of on-site **solar energy generating capacity**;

- (amounts based on number/size of lots or developed floor area)

(2) the purchase of equivalent **credits** in commercial-scale solar energy facilities elsewhere in the city; ***OR***

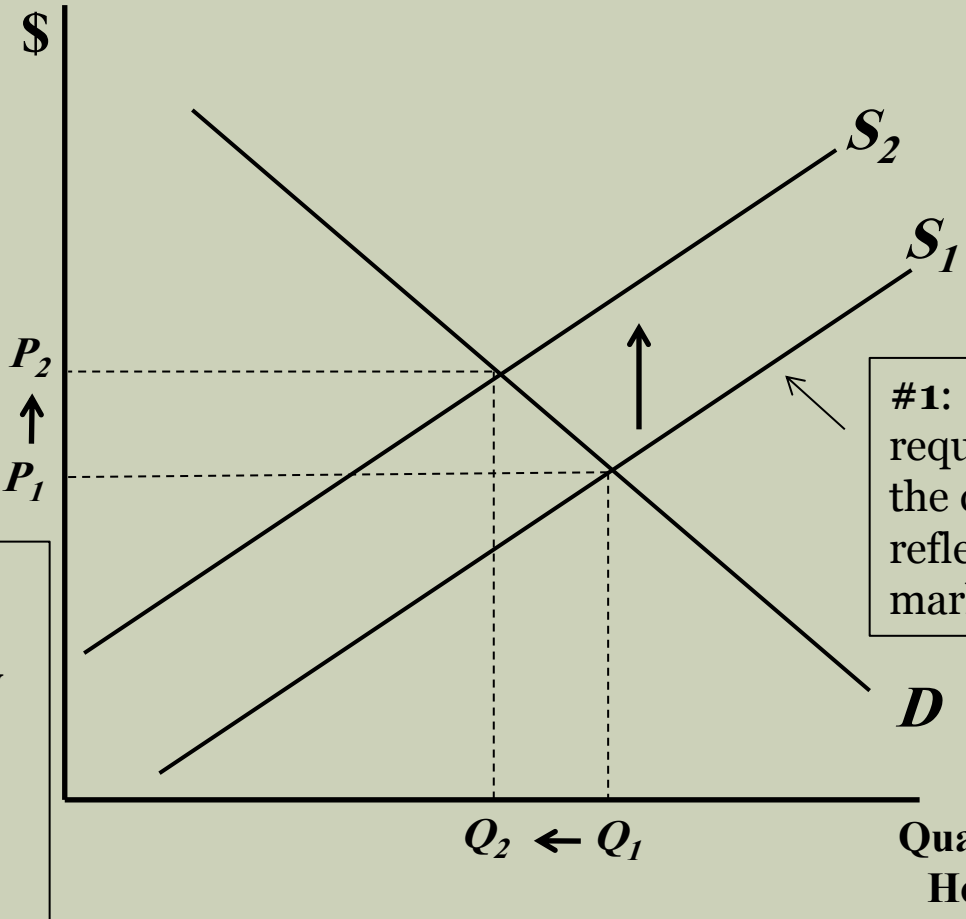
(3) payment of **fees** in lieu of on-site solar energy installations

- (funds generated through such fees would support local commercial-scale solar energy projects)

William Fischel's "Homevoter Hypothesis"

"…[H]omeowners… tend to choose those [local government] policies that preserve or increase the value of their homes."

Impact of a Solar Energy Installation Requirement (for New Homes) on Home Prices



#1: Solar mandate requirements tend to increase the cost of new housing, as reflected by upward shift in the market supply from S_1 to S_2

#2: This reduction in housing supply increases the equilibrium price of new homes from P_1 to P_2

Can This Work?
Some Real-World Examples

- **Renewable Energy Mitigation Program** (Aspen and Pitkin County, CO)
  - Builders of **new homes** larger than 5,000 sq. ft. or having certain outdoor energy uses **must**:
    - install on-site solar/geothermal energy systems (based on sq. ft.) ***OR***
    - pay a fee (revenues help to fund local sustainable energy projects)
- **Solar Energy System Requirement** (Lancaster, CA)
  - Requires 1.0 to 1.5 kW of solar per lot/unit
  - Allows developers to fulfill requirement off-site

Publicly-Owned Commercial-Scale Solar

City Hall, Bainbridge Island, WA

Advantages of *Commercial*-Scale Solar over *Residential*-Scale Solar

- **Lower hard costs per kW**
- **Lower soft costs per kW**
  - Lower permitting, sale/lease, installation, design, interconnection, and inspection costs per kW
- **Fewer solar access conflicts per kW**
- **Less aesthetic impact per kW**
- **More manageable grid impacts**