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Solar Energy Industries Association®
Welcome to the
SEIA Solar 101 Program

Solar 101: Part 1

Session Speakers

Justin Baca

Vice President of Markets & Research

SEIA

Shawn Rumery

Senior Director of Research

SEIA

Kevin Lucas

Senior Director of Utility Regulation and Policy

SEIA

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Solar Technology

Justin Baca

Vice President of
Markets and Research

Terminology

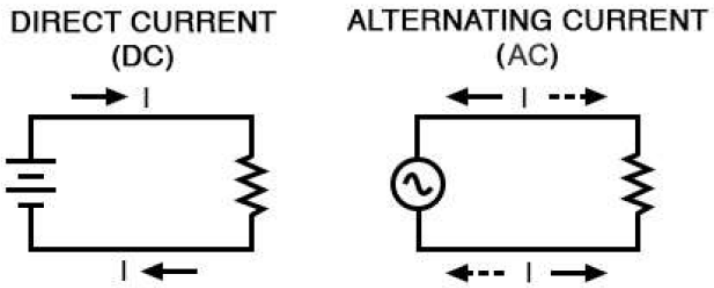
Power = Voltage x Current

- Measures instantaneous draw of an electrical load, or the output capacity of a generator
  - Watt (W)
  - Kilowatt (kW)
  - Megawatt (MW)
  - Gigawatt (GW)
  - Terawatt (TW)

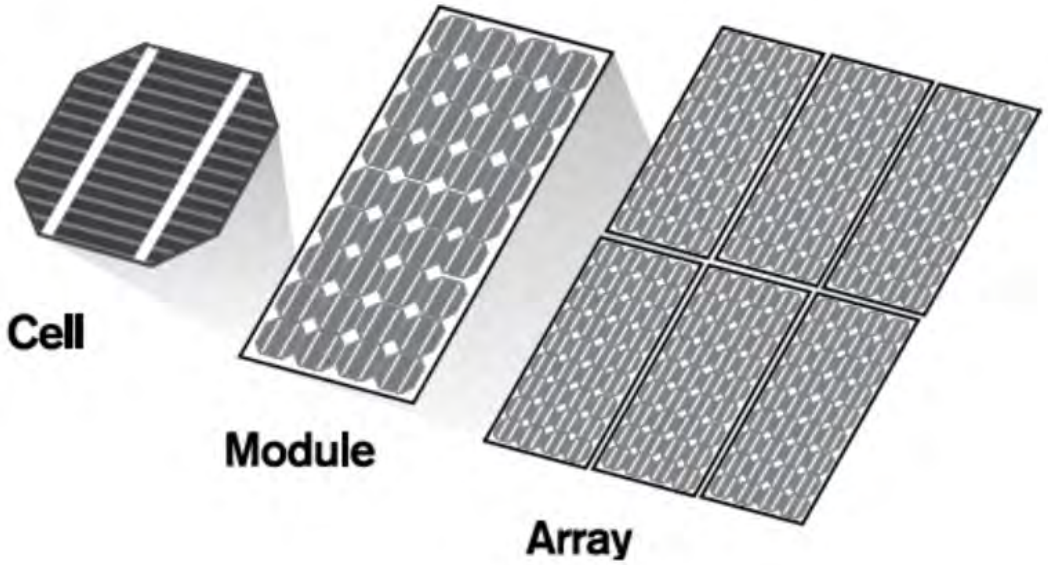
Energy = Power x Time

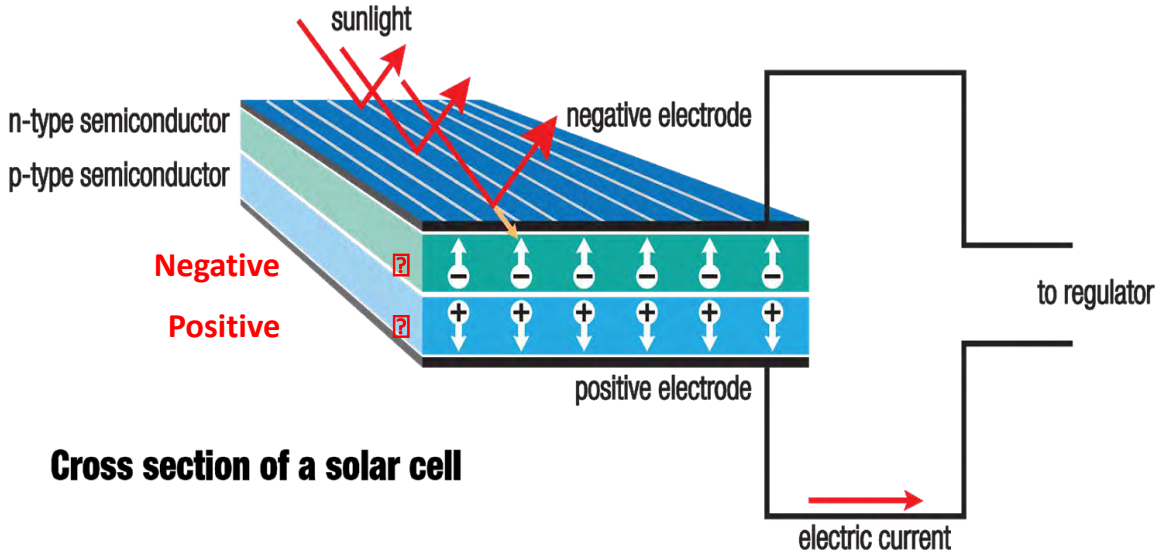
- Sustained delivery of a certain amount of power
  - Kilowatt-hour (kWh)
  - Megawatt-hour (MWh)

Direct Current (DC) and Alternating Current (AC)



Photovoltaic Modules = Solar Panels





Source: Revision Energy

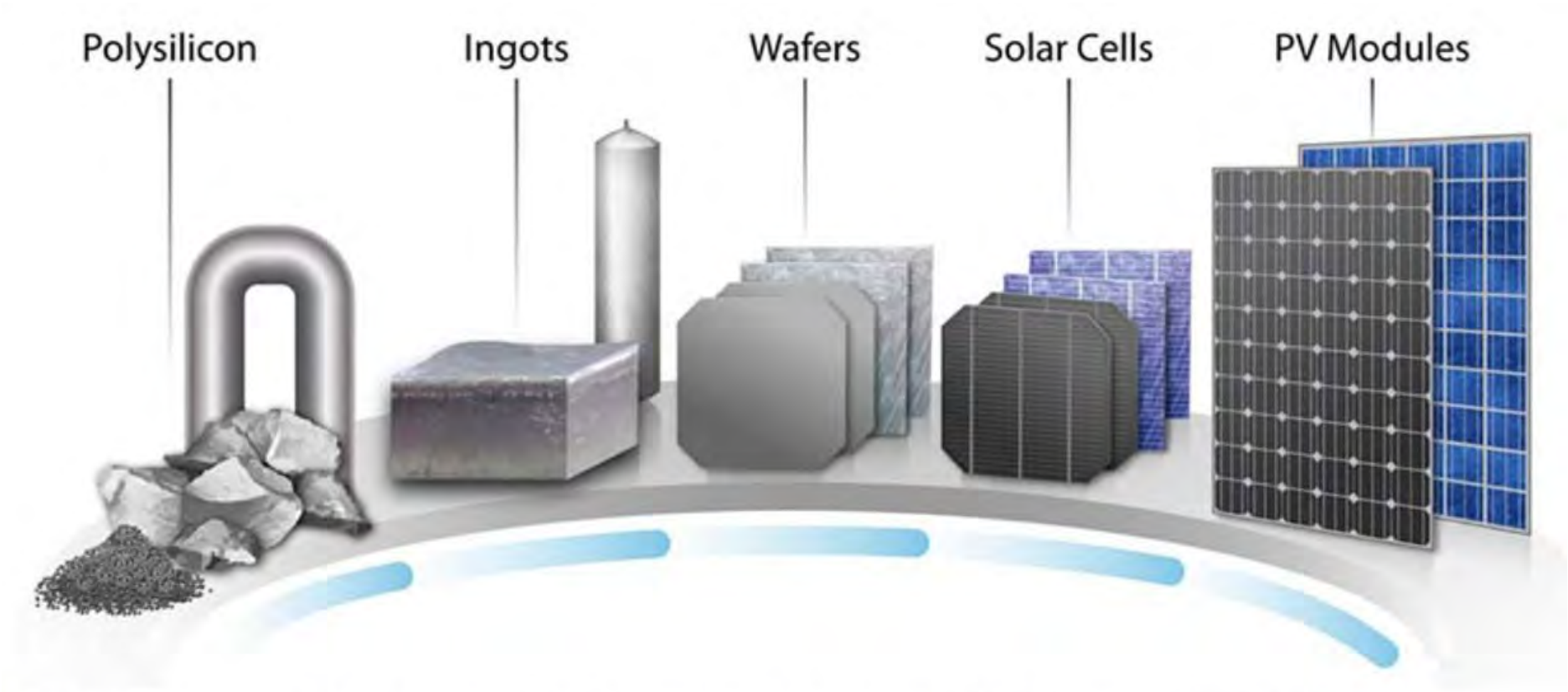
Types of PV Modules

Monocrystalline

Multicrystalline

Thin Film

Primary Crystalline Silicon Supply Chain



NREL analysis of manufacturing costs for silicon solar cells includes bottom-up cost modeling for all the steps in the silicon value chain.

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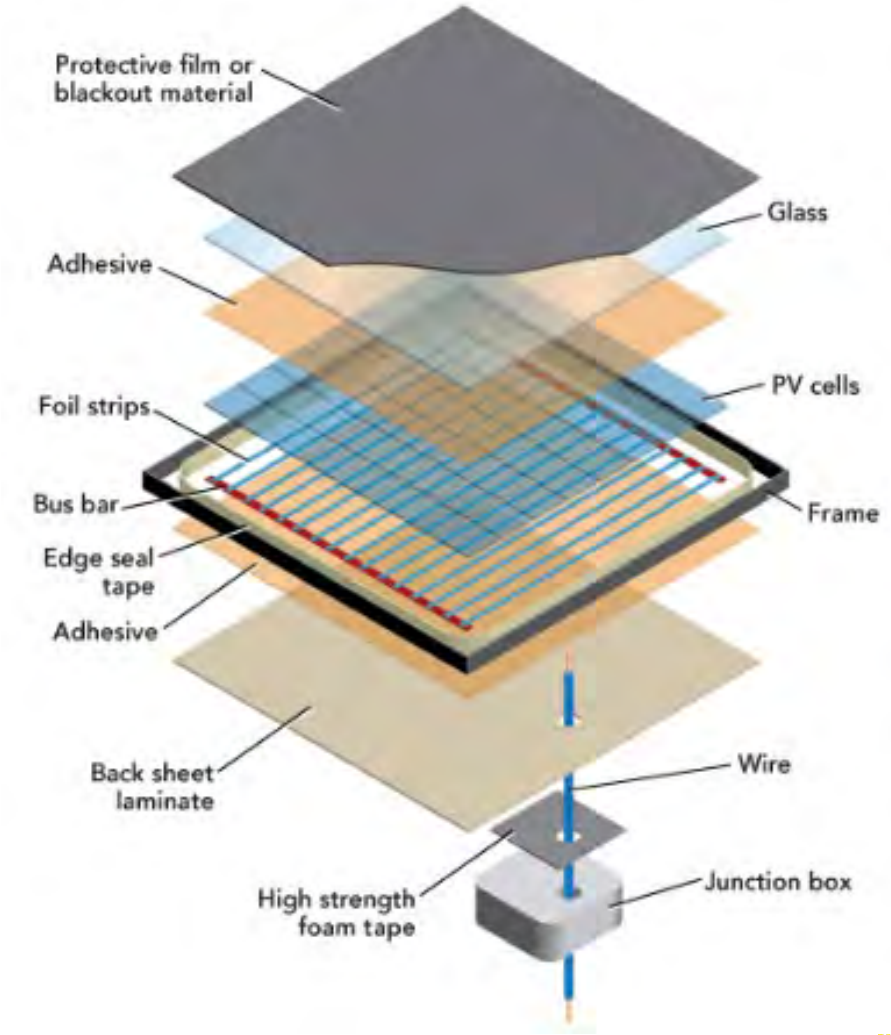
Crystalline PV Modules



Product photos: JinkoSolar, Renogy, Renewable Energy World

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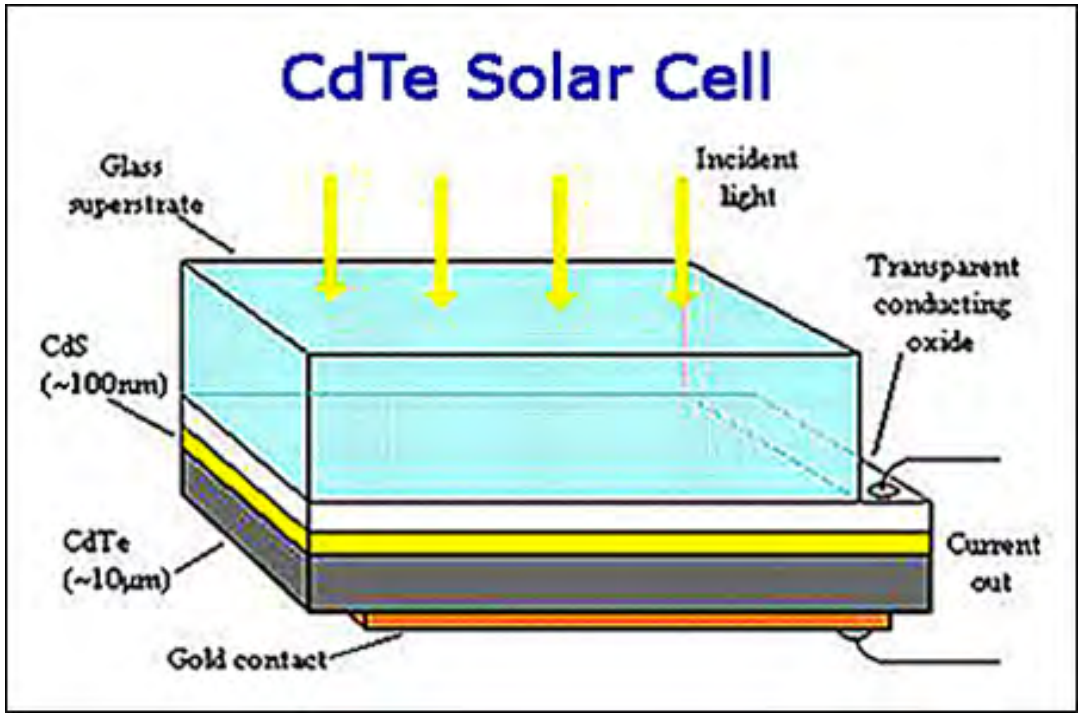
Thin-Film PV Module



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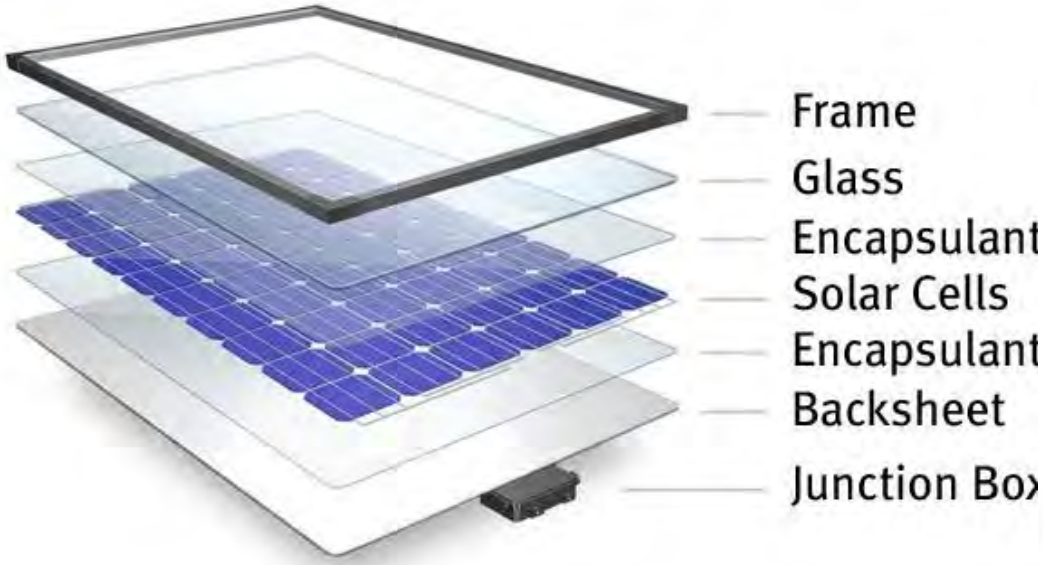
Basic PV Module Components

- Back of Crystalline Silicon panel:
- Junction box affixed to backsheet
- Connectors
- Cables
- Potting Material

Product photos: Renogy, Tigo, Solar Professional

Photovoltaic System



Source: DuPont

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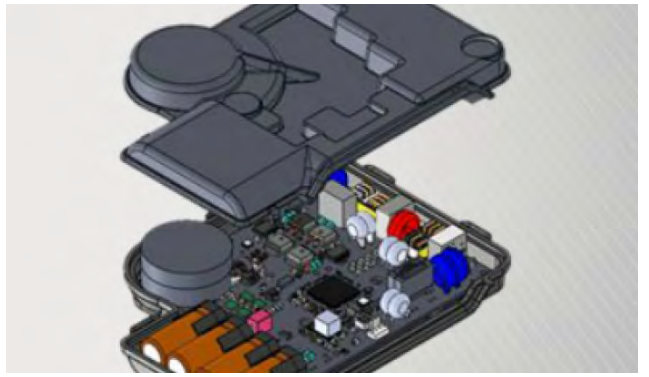
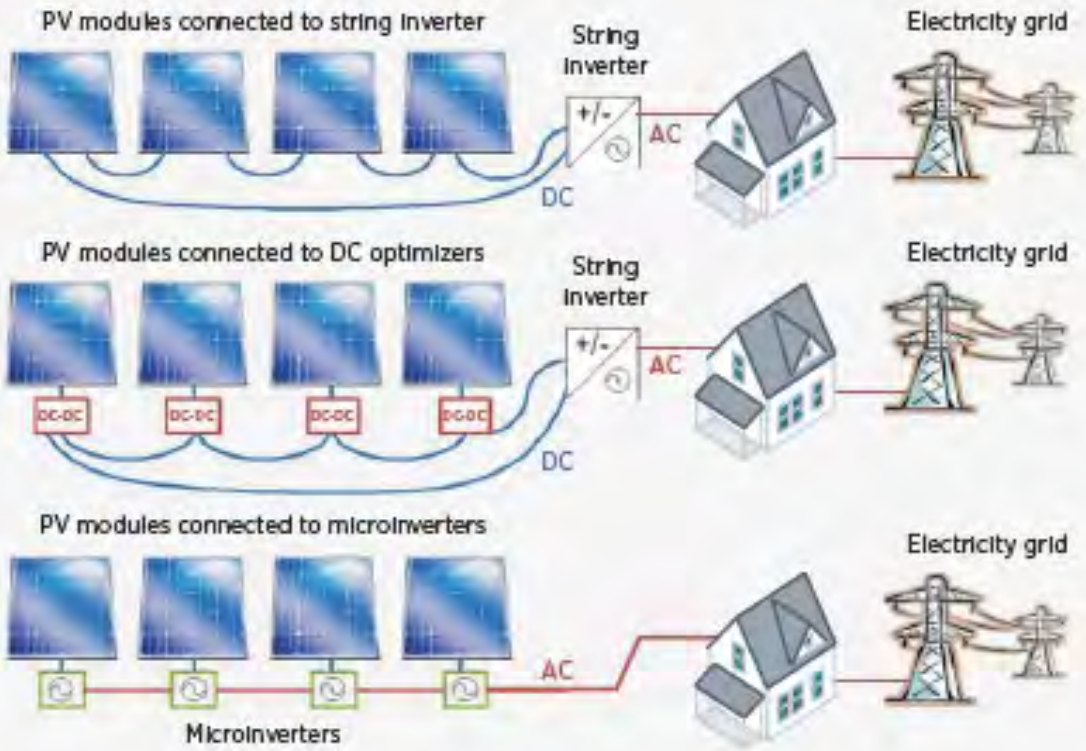
Inverters

- Inverter
- Converts the DC energy produced by the panel to AC energy
- For rooftop systems, a ‘string’ inverter or a microinverter (module level) may be used



Product photos/graphics: SMA America, Enphase/Greentech Media, SolarBridge/HomePower Magazine

Module Level Power Electronics (MLPE)



DC power optimizer that attaches to the frame or back of a PV module and is wired to the junction box terminals

Microinverter that attaches to the frame or back of a PV module and is wired to the junction box terminals

Mounting Systems

- Consist of rails, clamps, mounts, mounting hardware and roofing attachments

Product Photos: S-5!, PanelClaw, QuickMount PV

Mounting Systems Ballasted

Solar Trackers / Tracking Systems

Photo: NEXTracker, RBI Solar

Tracking System Types

Single Axis

Dual Axis

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Building Integrated Photovoltaics (BPV)

Photos: Architectural Solar, Schueco

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Utility-Scale Solar PV Project Examples

Photos: Recurrent Energy's Sunset Reservoir in San Francisco, California and SunPower's 250MW California Valley Solar Ranch

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Utility-Scale Solar PV Inverters

- Utility-scale inverters serve the same function as string inverters, just with a much larger load and scale to manage
- Often sized at 500kW to 750kW
- Some larger projects choose to employ high-efficiency string inverters instead of central utility-scale inverters

Photo: SMA America

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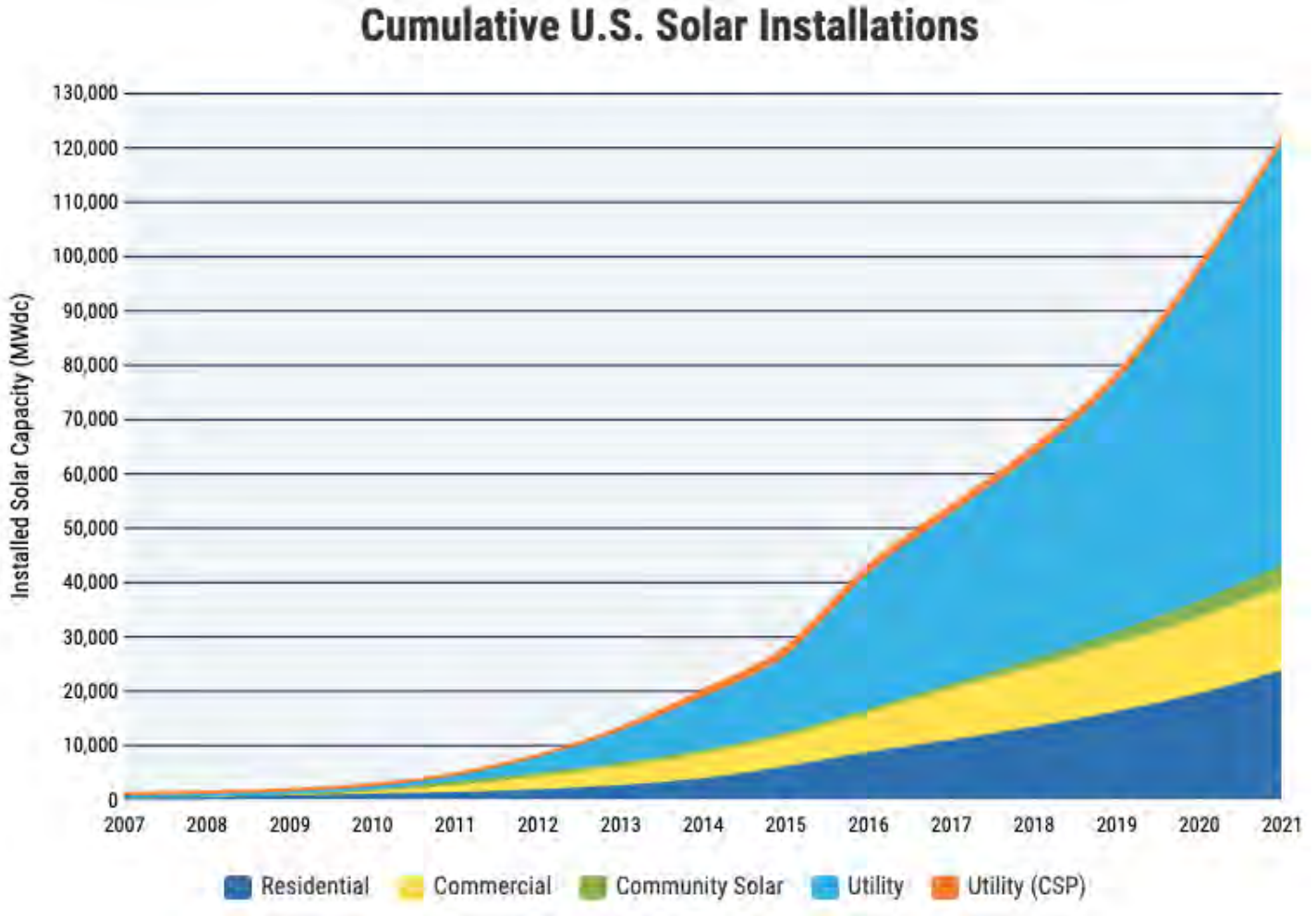
Market Segmentation

Shawn Rumery

Senior Director of Research

Massive Growth Since 2000 Sets the Stage for the Solar+ Decade



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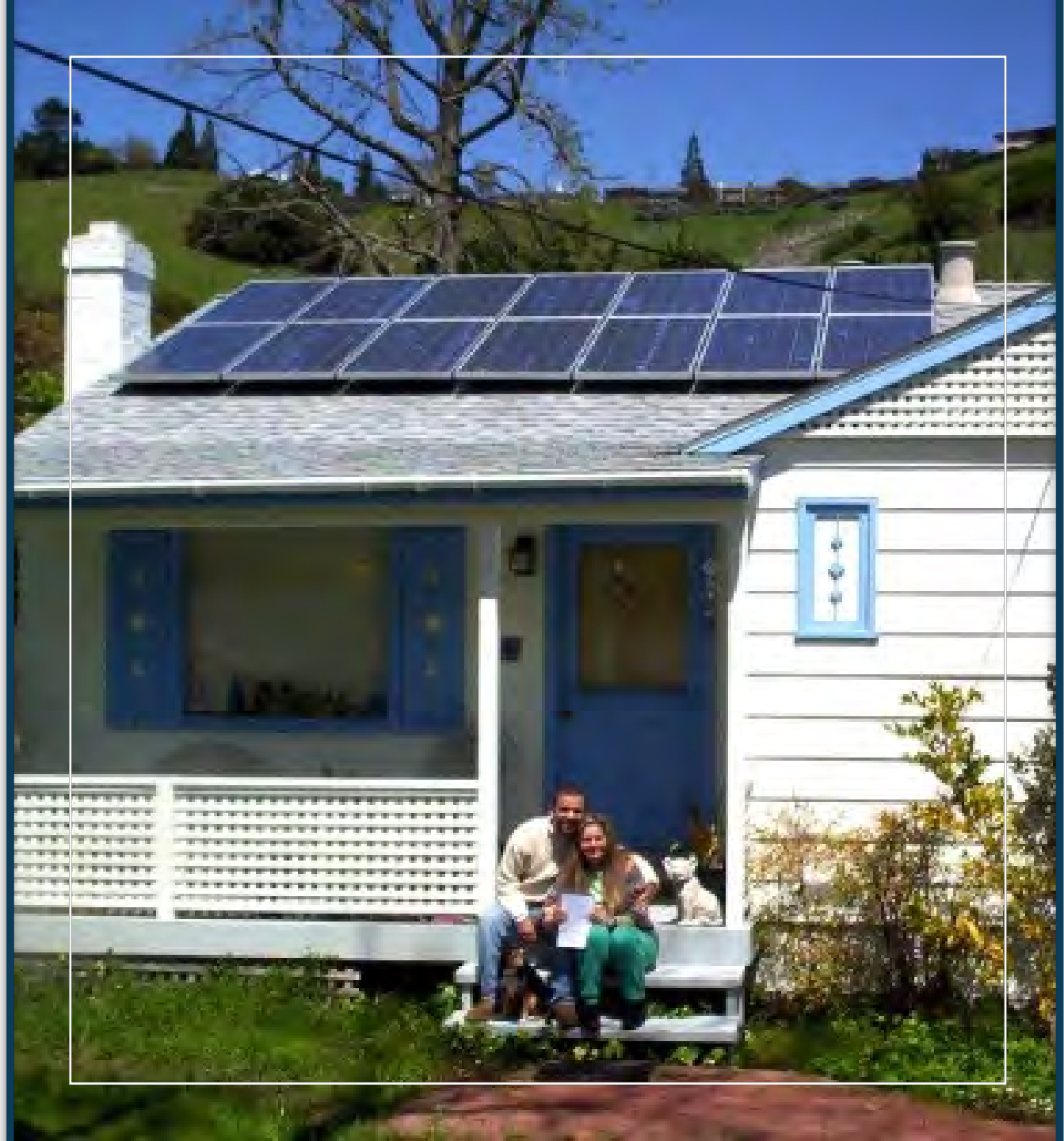
- Solar has experienced an average **annual growth rate of 33%** in the last 10 years
- Strong federal policies like the solar Investment Tax Credit, rapidly declining costs, and increasing demand across the private and public sector for clean electricity has sped solar deployment
- There are now more than **121 gigawatts (GW)** of solar capacity installed nationwide, enough to power 23.3 million homes.

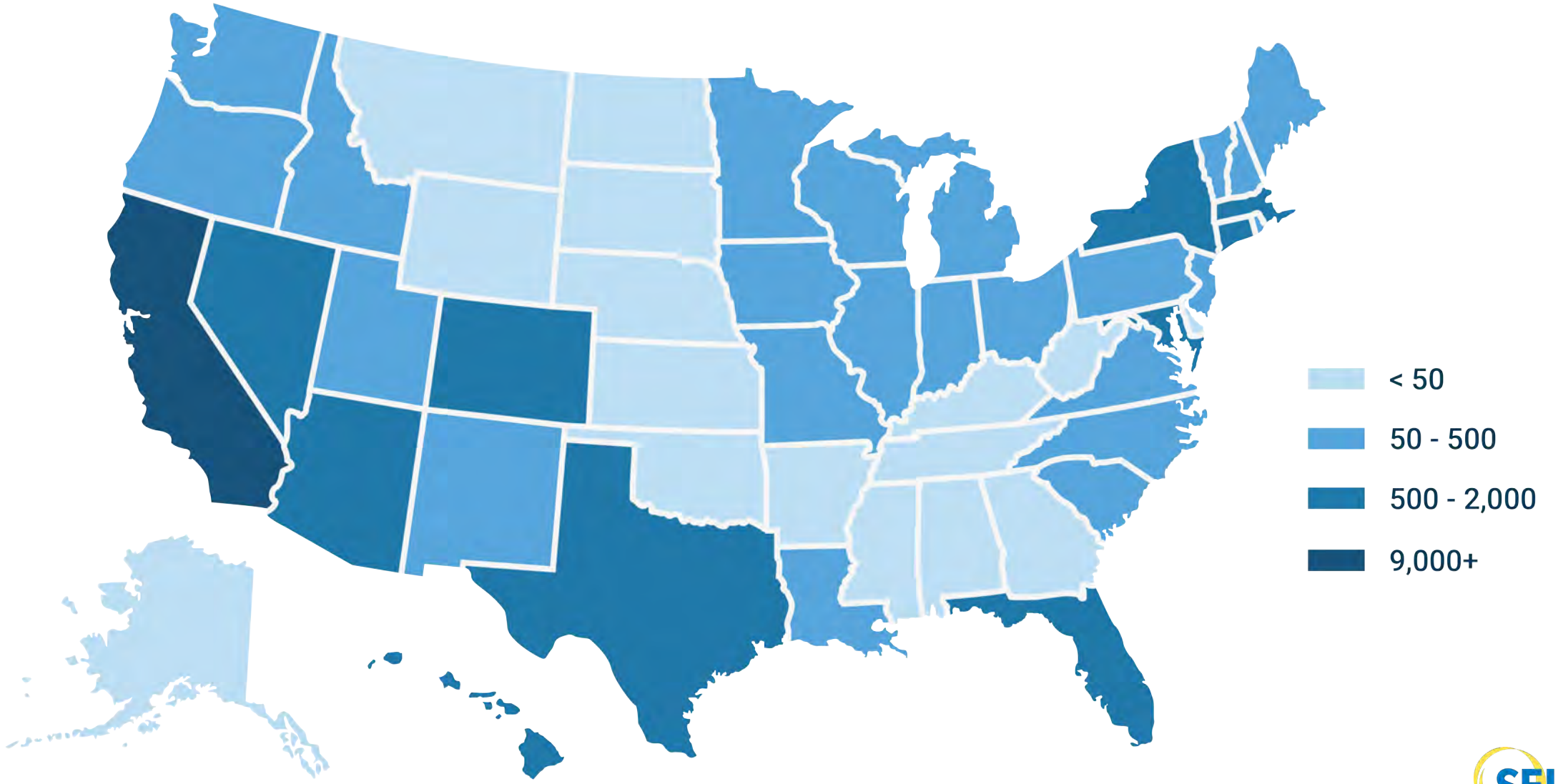
Residential Solar Photovoltaic (PV)

Typical rooftop PV systems on single family residential properties:

- Capacity: 1-20 kW (average 8 kW)
  - Sized to account for majority of yearly household electricity use (but not more than)
- Normally grid-connected
  - Uses net energy metering (NEM)
  - Residential entity is electricity off-taker
- Average cost: $3.10/watt in Q4 2021
  - Average cash system cost: ~$20,000
- Finance Options
  - Third Party Ownership (Lease/PPA)
  - Debt Financing through installer
  - Self-financed
- 18% Market Share in 2021



Cumulative U.S. Residential Solar Installations by State (MW)



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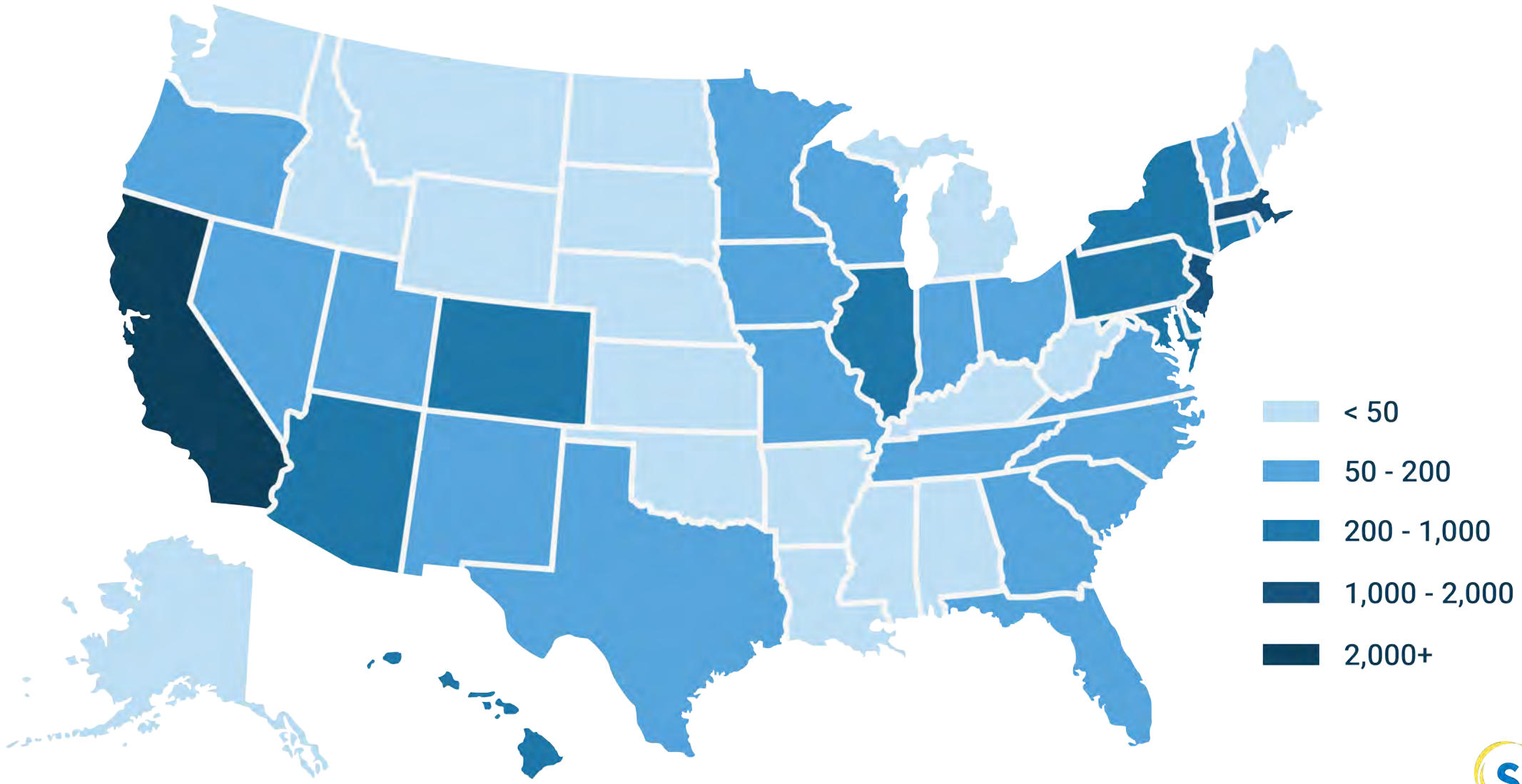
Commercial and Industrial Solar Photovoltaic (PV)

Typical roof or ground-mounted installations at commercial, industrial, government or non-profit properties:

- Capacity: 1-5000+ kW (average 130 kW)
  - Sizes vary widely depending on business and site
- Normally grid-connected
  - Uses net energy metering (NEM)
  - Commercial entity is electricity off-taker
- Average cost: $1.55/watt
  - Average system cost: ranges widely
- Finance Options
  - Third Party Ownership (PPA)
  - Debt Financing through installer
  - Grants and/or bonds for certain entities
  - Self-financed
- 6% Market Share in 2018

Cumulative U.S. C&I Solar Installations by State (MW)



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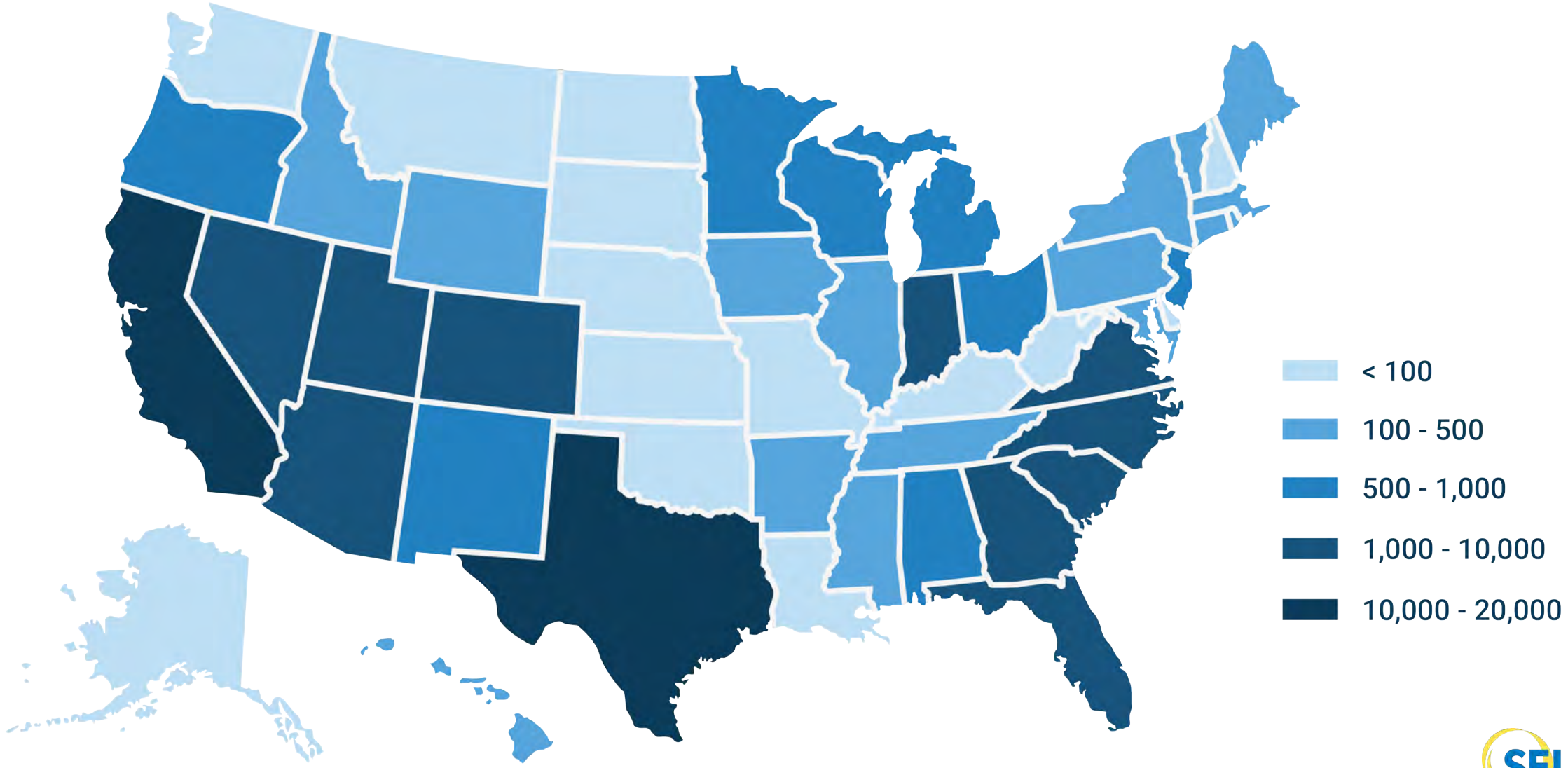
Utility-Scale Solar Photovoltaic (PV)

Typical ground-mounted installations in a variety of open spaces (desert, brownfield, grassland, cleared land other reclaimed land):

- Capacity: 1+ MW (average 76 MW)
  - Can exceed 1,000 MW in largest multi-phase projects
- Sells electricity on wholesale market
  - Utility, Independent Power Producer or Corporate-owned
  - Electricity off-taker is utility or large corporate
- Average cost: $1.06/watt (single axis tracker)
  - Average system cost: ranges widely
- Finance Options
  - Multi-party arrangements
  - Debt, Equity, Tax Equity
- 72% Market Share in 2018

Cumulative U.S. Utility-Scale Solar Installations by State (MW)



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Community Solar Photovoltaic (PV)

Ground-Mounted Installations on Greenfields or Brownfields:

- Capacity: Generally 1 – 5 MW
  - Smaller or larger projects are possible depending on state regulations
- Utility-Led or Third-Party Led
  - Electricity from Project is sold to residential and commercial customers
  - Typically executed through PPA or virtual PPA
- Average cost: $1 - 2/watt
  - Hardware and installation cost profile similar to utility-scale
  - Customer acquisition and servicing increases all-in cost
- Finance Options
  - Multi-Party Arrangements (includes subscriber deposits)
  - Debt, Equity, Tax Equity
- 4% Market Share in 2018

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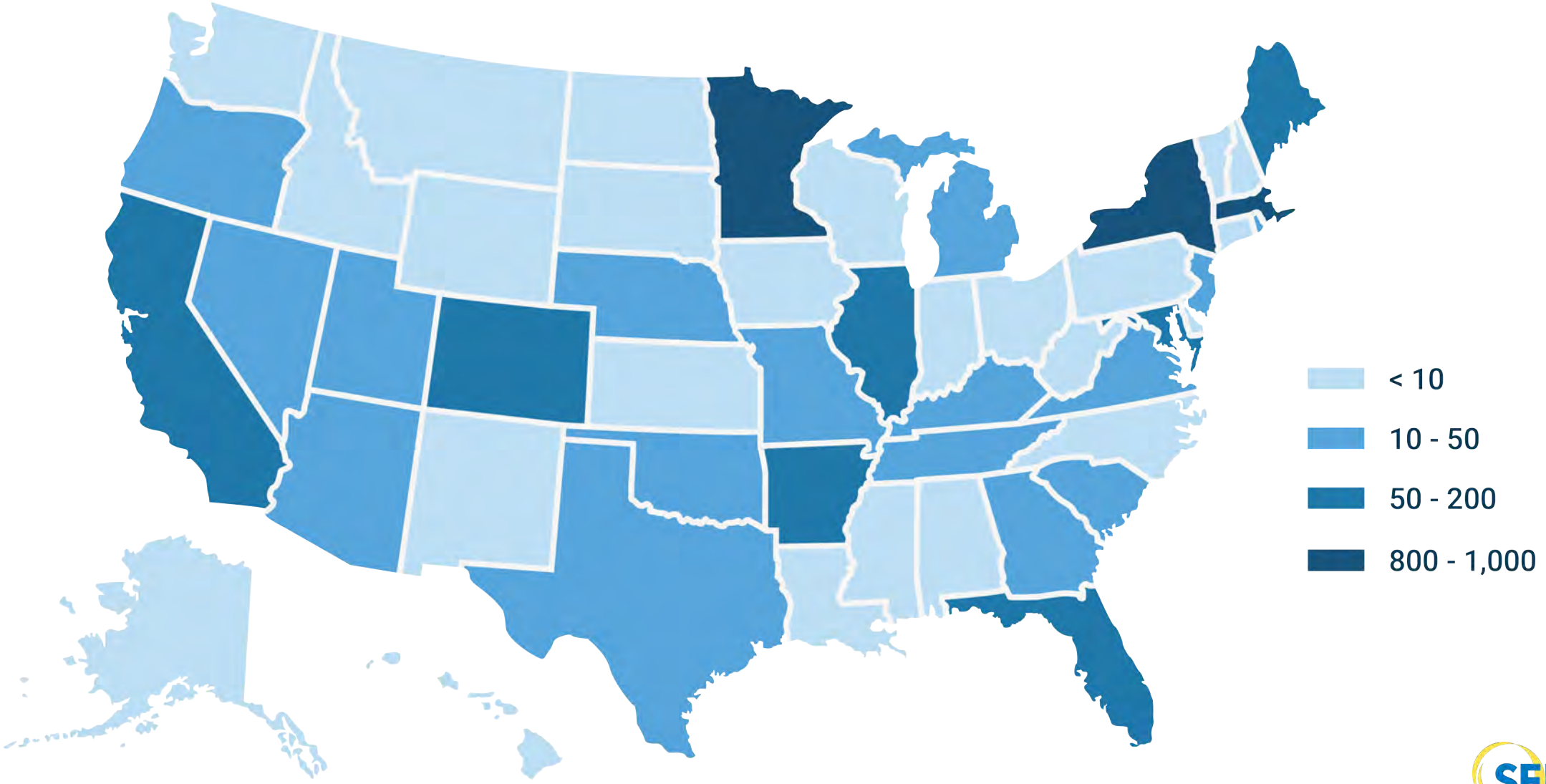
Cumulative U.S. Community Solar Installations by State



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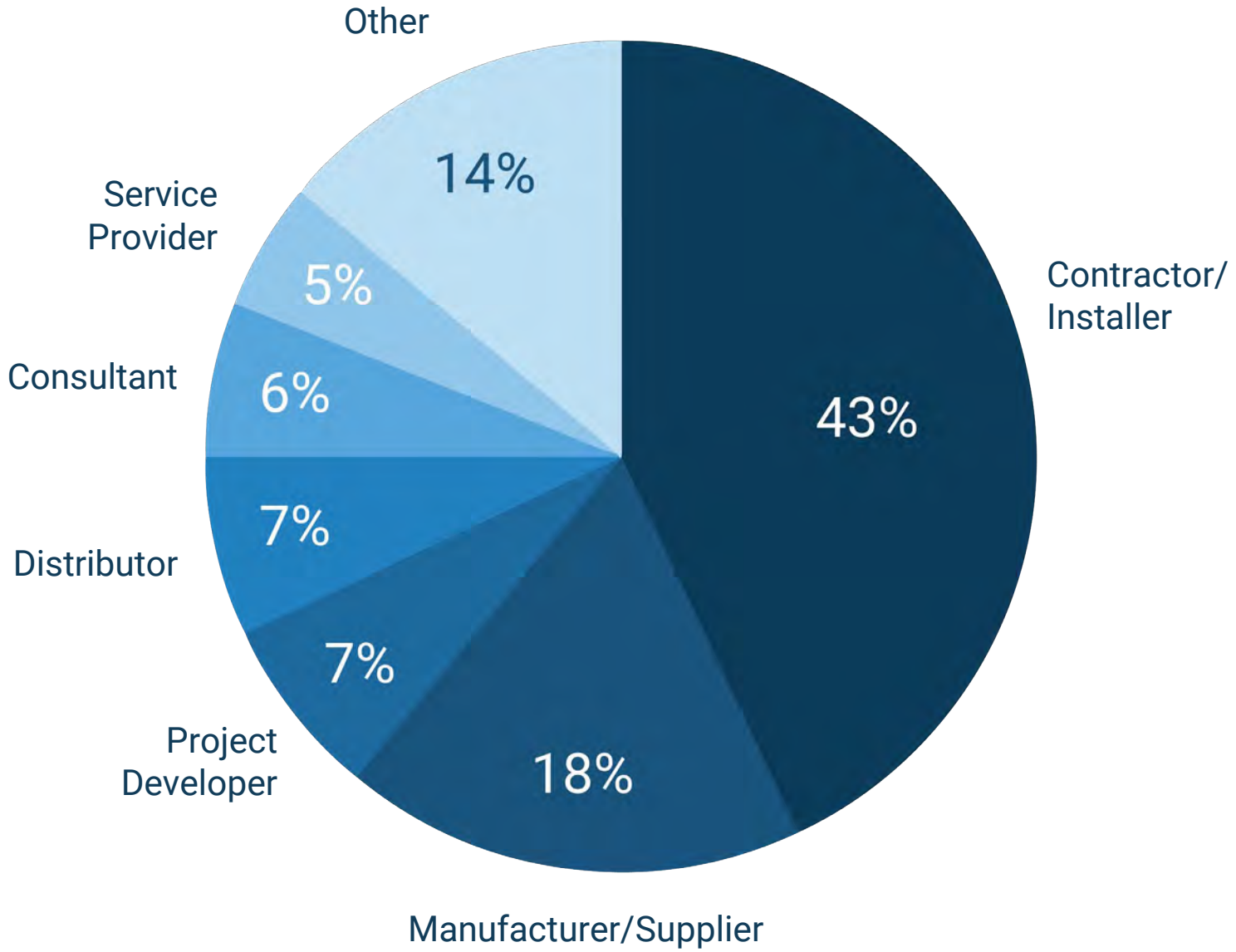
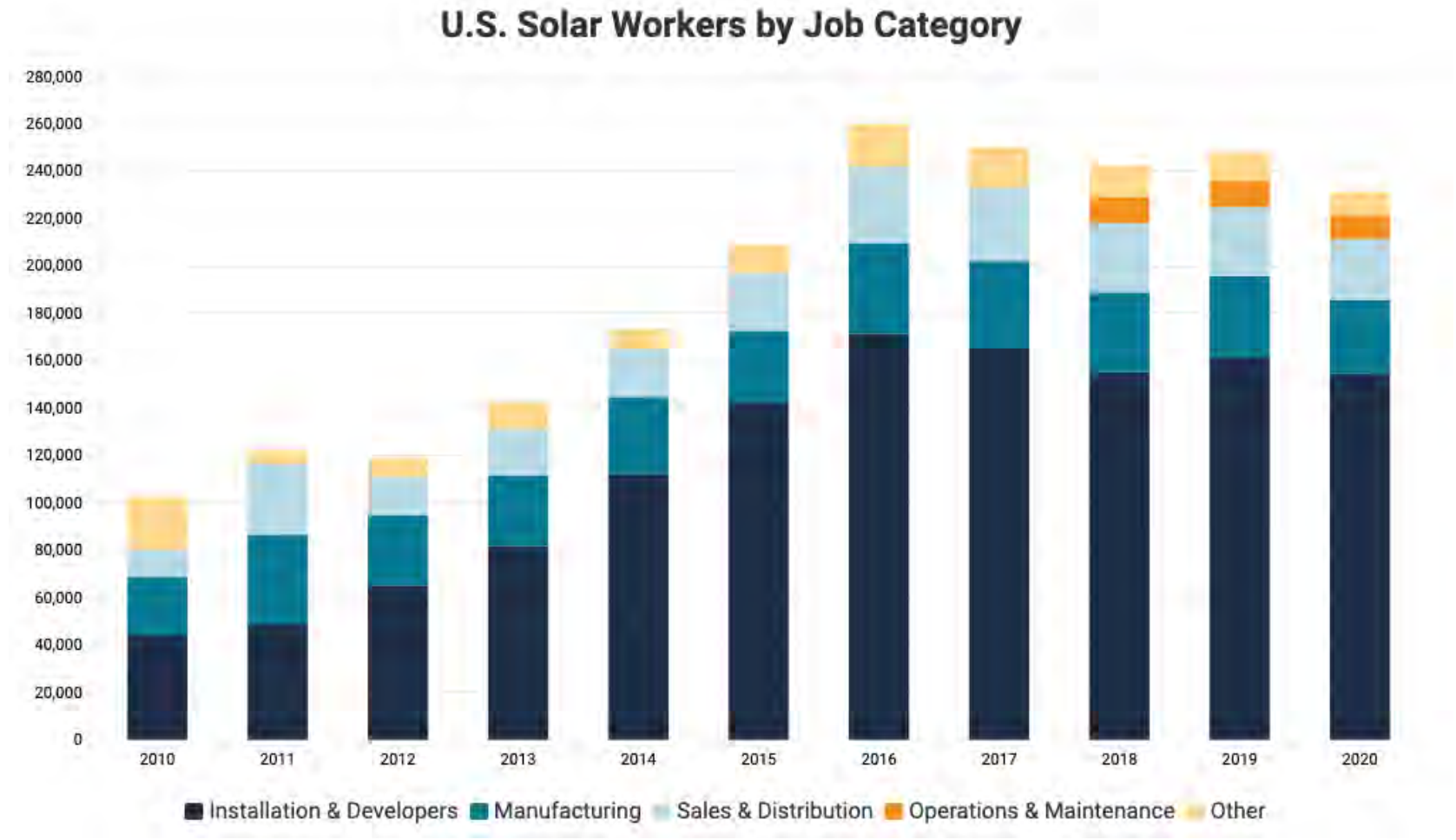
Solar Companies by Business Type



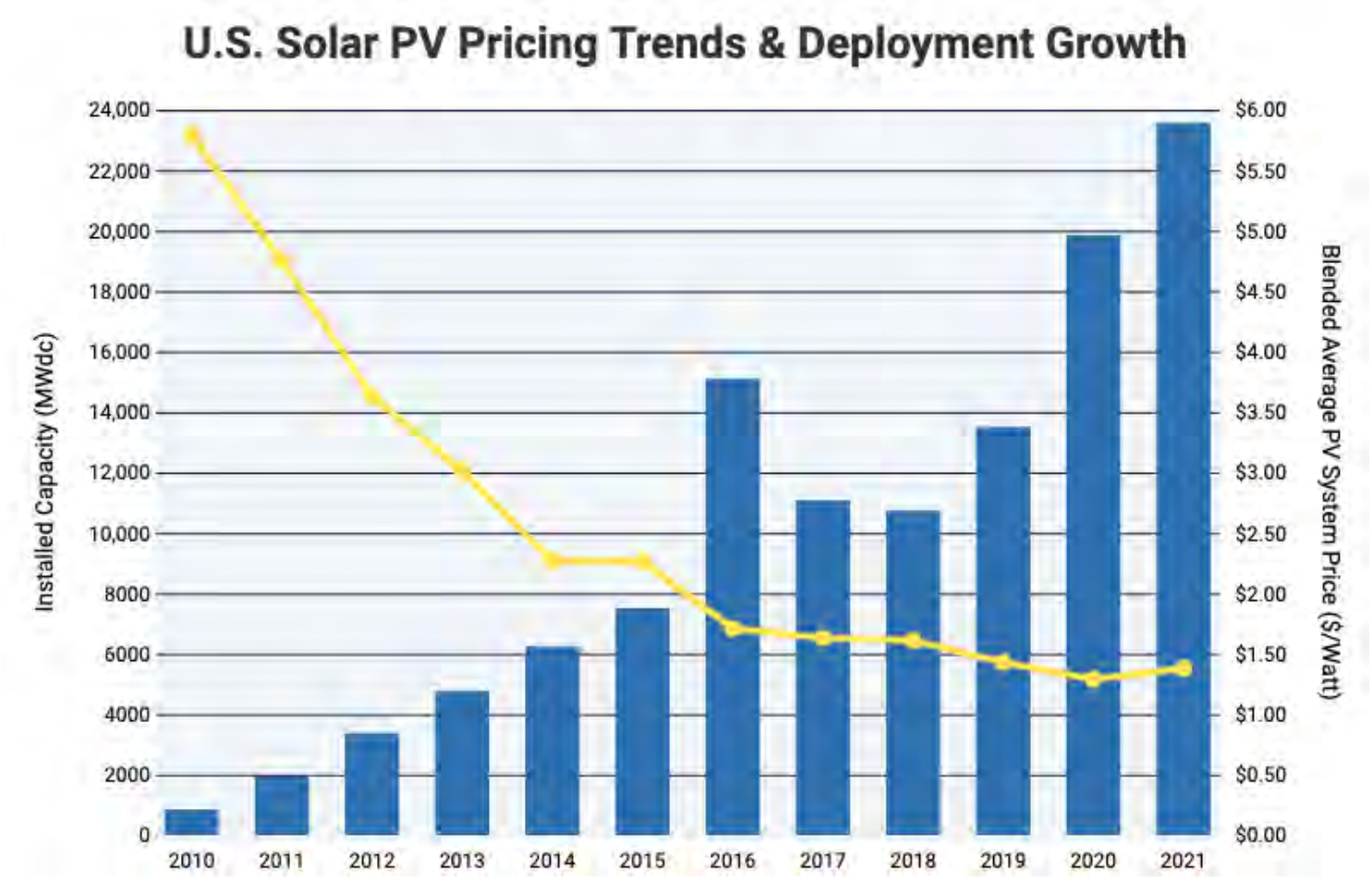
Solar as an Economic Engine

- As of 2020, more than **230,000** Americans work in solar at more than **10,000** companies in every U.S. state.
- In 2021, the solar industry generated nearly **$33 billion of private investment** in the American economy.



Source: National Solar Jobs Census 2020

Growth in Solar is Led by Falling Prices

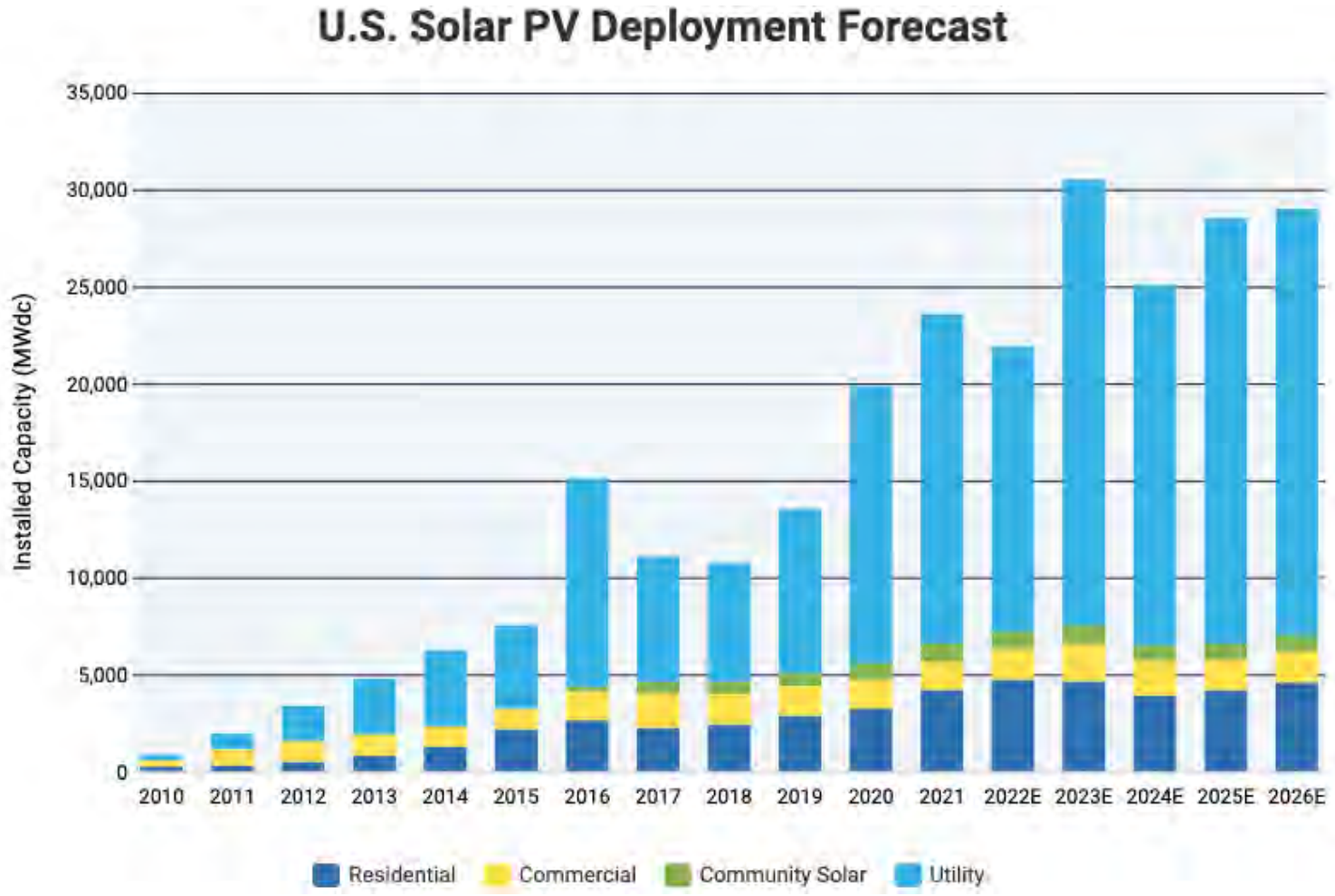


- The cost to install solar has dropped by more than **60% over the last decade**, leading the industry to expand into new markets and deploy thousands of systems nationwide.
- An average-sized residential system has dropped from a pre-incentive price of **$40,000 in 2010 to roughly $20,000 today**
- Recent utility-scale prices range from **$16/MWh - $35/MWh**, competitive with all other forms of generation.

SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight 2021 Year in Review

Solar PV Growth Forecast

- The U.S. Solar market installed a record 23.6 GW in 2021, despite supply chain challenges brought on by the pandemic and trade disputes.
- Pricing and procurement challenges will continue to impact deployment in 2022, leading to the first annual decline in the market in 4 years.
- Assuming supply chain recovery and no major trade barriers, growth should resume in 2023 ahead of Investment Tax Credit step down in 2024.
- Barring new policy developments at the state and federal levels, industry growth through the end of the decade is premised on continued price declines and growing demand from utilities, states, corporations, and distributed solar customers.



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Market Regulation 101

Kevin Lucas

Senior Director of Utility Regulation and Policy

Overview and Goals

- The Power Grid is a phenomenally complex achievement that permeates all aspects of our modern economy
- This complexity extends to engineering, policy, regulation, and societal issues

Operation of the Grid	State Regulation	Federal / Regional Regulation	Environmental Considerations
- Planning for Reliability - Safe and Reliable Operation - Power vs. Energy - Supply / Demand Balance - Role of Energy Storage, Flex Demand	- Utility Regulation - Rate Design - Net Metering - Renewable / Clean Energy Standards - Energy Efficiency Standards	- Tax Policy - PURPA - RTOs / ISOs - Transmission Planning - Energy Imbalance Markets - Carbon Pricing	- Decarbonization - High Renewable Penetration Challenges - Electrification of Everything - PV vs. Other Tech.

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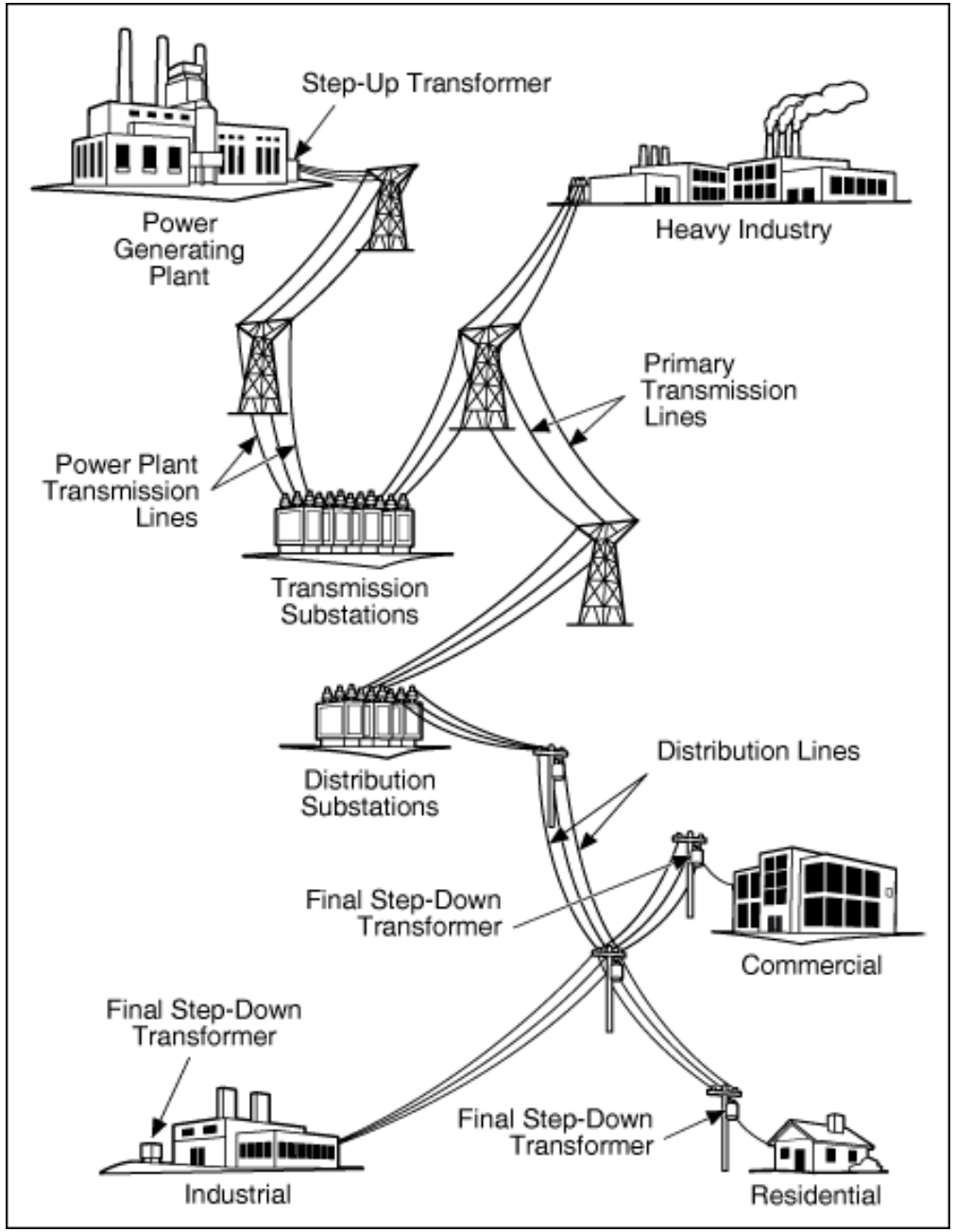
What is the Power Grid? A Series of Tubes!

- The traditional power grid
  - Creates power at central generating plants…
  - Transmits it long distances through transmission lines…
  - And delivers it to homes/businesses through a distribution network
- The evolving power grid uses the infrastructure above, but adds:
  - Distributed generation closer to loads
  - Load flexibility that can adjust to supply
  - Energy storage that helps to balance



Regulatory Compact

- Consolidation in 1920s lead to market power
  - 1935 Federal Power Act addressed some of these issues
- Regulatory Compact is an agreement between utility and public
  - Utility receives
    - Timely cost recovery of prudent expenditures
    - Guaranteed (and regulated) *opportunity* to earn return on assets
    - Monopoly control over a particular geographic area (franchise rights)
  - Public receives
    - Investment in essential, but high cost of capital services
    - Regulatory oversight of utility
    - Control of prices and approval of new expansions through regulatory oversight

Federalist Nature of Energy Market Regulation

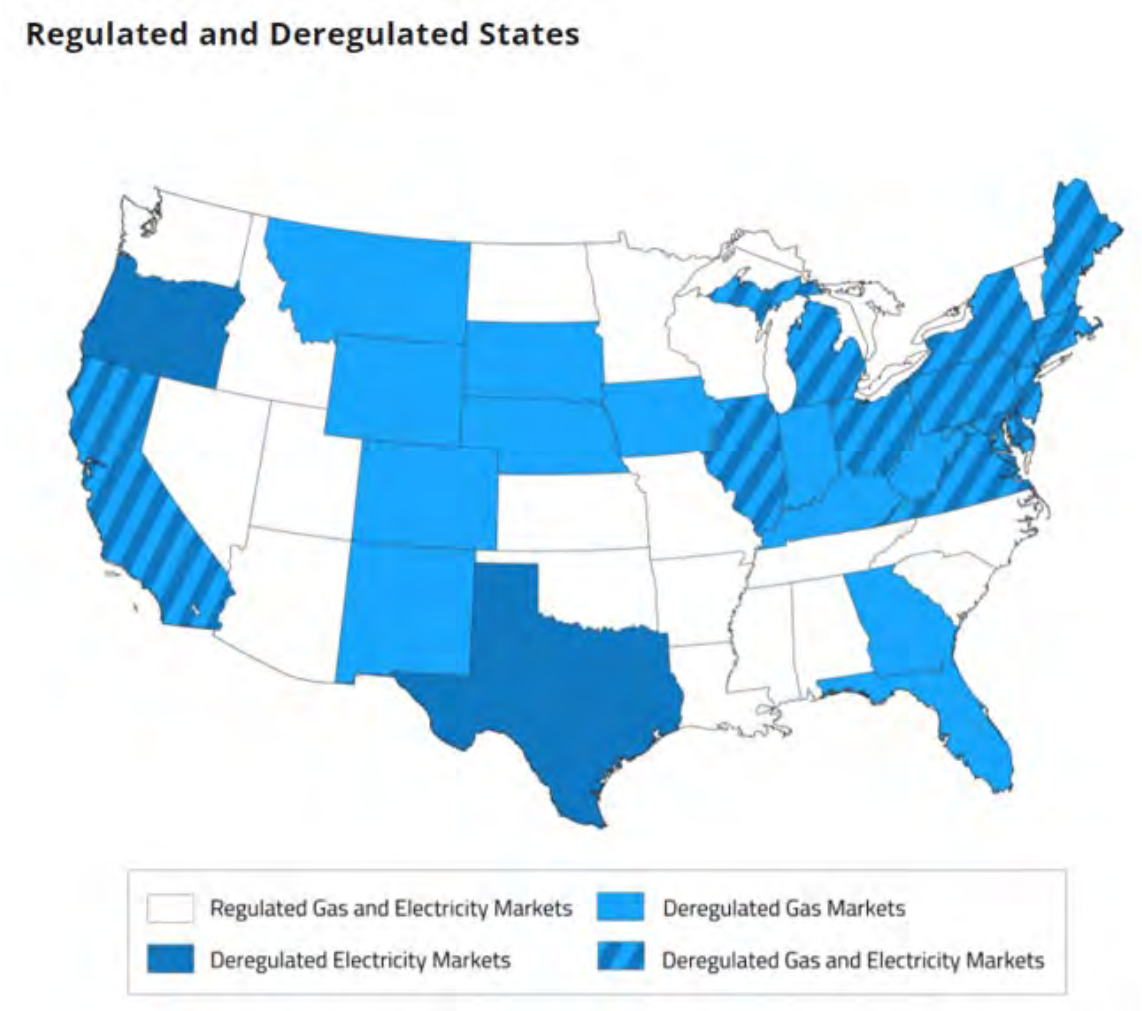
- Federal Regulation
  - Intrastate sales
  - Bulk power grid management and operation
  - Transmission planning
  - NERC reliability obligations
  - Hydroelectric dam licensing and safety
  - GHG reduction*

*Clean Power Plan and Clean Electricity Performance Program were examples of federal approach to GHG reduction, but many aspects were to have been implemented by states. National carbon price/tax would need to be federal, but states/regions have already enacted these programs

- State Regulation
  - Power plant and transmission siting
  - Renewable Portfolio Standards
  - Energy Efficiency Standards
  - Demand Response Programs
  - Customer Choice / Retail Access
  - Integrated Resource Planning
  - Distribution Resource Planning
  - GHG reduction
  - Net metering
  - Electric vehicle infrastructure
  - Retail rates and rate design
  - Local reliability/resilience
  - Electricity usage data access
  - And more…

Vertical Integration vs. Restructured Markets

- Vertical Integration
  - Utility owns generation and distribution system
  - Fuel costs passed through as expense
- Restructured
  - Utility owns distribution only
  - Market sets power supply costs
  - Retail providers compete for customers



Vertical Integration vs. Restructured Markets

- Vertical Integration
  - Utility owns generation and distribution system
  - Fuel costs passed through as expense
- Restructured
  - Utility owns distribution only
  - Market sets power supply costs
  - Retail providers compete for customers

Wholesale Market Common Designs

- Energy Market ($/MWh)
  - Day Ahead and Real Time (Balancing) markets
  - Security constrained, economic dispatch model based on market demand
    - 1 hour (DA) and 5 minute (RT) blocks
    - Hundreds of physical locations
  - All generators are paid clearing price regardless of their bid
- Capacity Market ($/MW-Day)
  - “Long-term” market for reliability
  - Typically annual auction for 1 year price several years in future
    - PJM, ISO-NE: 3 years forward
    - MISO: 1 year forward, residual market
    - NYISO: Monthly
  - Administratively determined demand curve
  - Minimum bid price for new generators

How are Retail Rates Set?

- Typically, rates are set in a Base Rate Case with a similar process
- Scope depends on a host of factors
  - Vertically integrated or deregulated? Decoupled? Public Utility, Investor-Owned Utility, Rural Coop?

How Much Revenue Should Utilities Receive?

Revenue Requirement

- Utility-proposed revenue needed to cover costs and earn a reasonable rate of return on assets
- RR = OpEx + (Net Assets * ROR)
  - Depreciation of assets and tax on revenues included

How Should Costs be Allocated?

Cost of Service Study

- Determine why costs are incurred
  - Energy, demand, fixed
- Determine what class uses equipment
  - Residential, commercial, industrial
- Propose allocation of costs to each class

How Should Revenue be Recovered?

Rate Design

- Determine how to recover each class's revenue requirement
- Rate typically composed of:
  - Fixed (customer charge)
  - Demand (kW-based)
  - Energy (kWh-based)

Current and Evolving Policy/Tech Issues

- **Current Topics**
  - Net metering and successors
  - Value of Solar
  - Rate Design for DERs
  - High renewable penetration
  - Electrification of transportation and building loads
  - Shift to winter peak
  - Interconnection challenges
  - Land use / NIMBY
- **Evolving/Future Issues**
  - FERC Order 2222 and DER aggregation
  - Bi-directional vehicle-to-grid
  - “Insert here”-as-a-service
  - “Macrogrid” and HVDC transmission overlays
  - Offshore wind
  - Integrated IRP/Distribution System Planning
  - DERMS

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Solar 101: Part 2

Session Speakers

Jeremy Woodrum

Senior Director of Congressional Affairs

SEIA

Erika Symmonds

Vice President of Equity and Workforce Development

SEIA

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Solar Policy 101

Jeremy Woodrum

Senior Director of
Congressional Affairs

Key Terms in Congress and Admin

- Tax Policy Terms
  - Investment Tax Credit; solar, storage, transmission; PTC; PBTC; Build Back Better
  - Financing (direct pay)
  - Labor and Domestic Content/Manufacturing Policy
  - Non-solar-specific, but impacts solar
  - Key Committees: House, Ways and Means; Senate, Finance
- Non-Tax Congressional Policy
  - Low-income community solar, IIJA, transmission, net metering, supply chain, REAP, transmission, DOE Solar Energy Technology Office, migratory birds
  - Key Committees: Select Committee on Climate Crisis, Appropriations, Natural Resources, Energy and Commerce, Finance, Energy and Natural Resources, Environment and Public Works

Solar Investment Tax Credit (ITC) Stepdown

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*Some residential solar systems are financed using a lease mechanism that allows the homeowner to take advantage of the Section 48 commercial ITC

Key Terms in Congress and Admin

- Trade/Supply Chain Policy
  - 201 Tariffs
  - 301 Tariffs
  - 232 Tariffs
  - Antidumping/Countervailing Duty and Circumvention
  - Withhold Release Orders and UFLPA
- Federal Affairs
  - Notice and Comment Rule-Making
  - Engagement with Agency Staff (safe harbor, CEQ clean energy projects)
  - Litigation

SEIA Strategies & Tactics

- Information and Best Practices Sharing
- Research and Reporting
- Media Narrative
- Advocacy Campaign Coordination
- Political Action Committee

Questions?

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Environmental Justice 101

Erika Symmonds

Vice President of Equity and Workplace Development

Basic Human Desires

- Clean air
- Clean water
- Healthy communities
- Equitable power to impact policies and projects that impact their day to day lives

Environmental Justice requires having these things no matter your race, wealth, zip code, religion, etc.

Environmental Justice Definition

Recognition and remediation of the disproportionately high and adverse human health or environmental effects on communities of color and low-income communities.

Source: Robert D. Bullard & Glenn S. Johnson, Environmental Justice: Grassroots Activism and the Impact on Public Policy Decision-Making, 56 J. of Soc. Issues 555, 558 (2000).

True Stories

- Can I get a sewage plant with a side of bus depot?
- Get your hazardous hog farm here
- Now you see it, now you don’t– the disappearing mountains and streams of your hometown
- Coal Ash keeps falling on my head

Environmental Justice – It's a Movement

1970s and 1980s: Environmental Justice Movement

Key Claims
- Access to environmental decision-making
- Redistribution of harms of development

1990s and 2000s: Climate Justice Movement

Key Claims
- Access to decision-making on climate change mitigation (reducing fossil-fuel consumption in the global economy)
- Shaping policy efforts to avert disproportionate climate harms faced by low-income communities and communities of color.

Energy Justice Movement: 2010s

Key Claims
- Access to economic benefits of new energy system
- Right to make decisions regarding energy
- Access to clean and affordable energy

Source: https://iejusa.org/section-1-defining-energy-justice/

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Where does solar+ come in?

In the News

May 17, 2020, 05:30pm EDT | 1,278 views

In America, Racial Injustice Infects The Very Air We Breathe

David Carlin Contributor ⓘ

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Helping you to understand and thrive in our changing world

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Solar 101: Part 3

Session Speakers

Tony Grappone

Partner

Novogradac

Emily Tregidgo

Senior Manager

AES Clean Energy

Shariff Barakat

Partner

Akin Gump Strauss Hauer & Feld LLP

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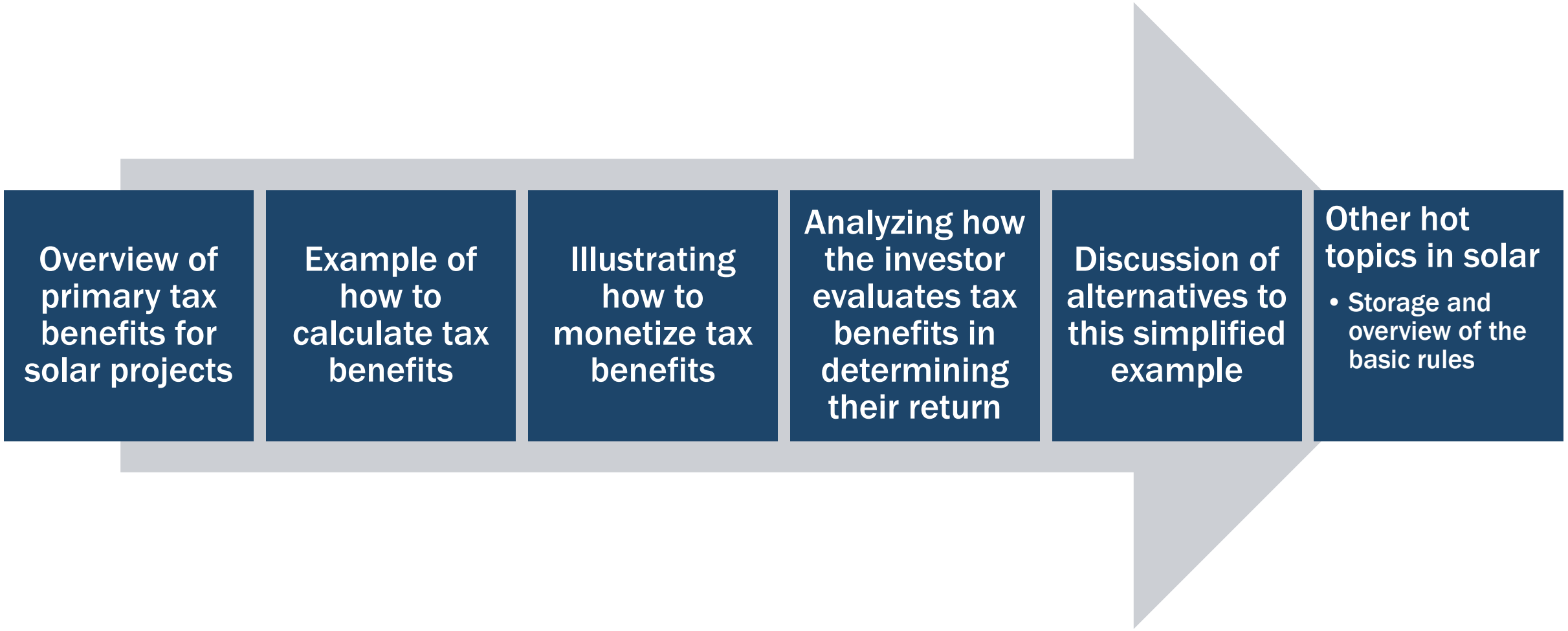
Agenda

- Introduction
  - Project financing, tax benefits, and tax equity
  - Storage overview
- Tax equity for storage projects
  - Qualifications and structuring
  - Pricing, challenges, and landscape
- Capital stack dynamics
  - Interaction of debt and tax equity
- Looking ahead…

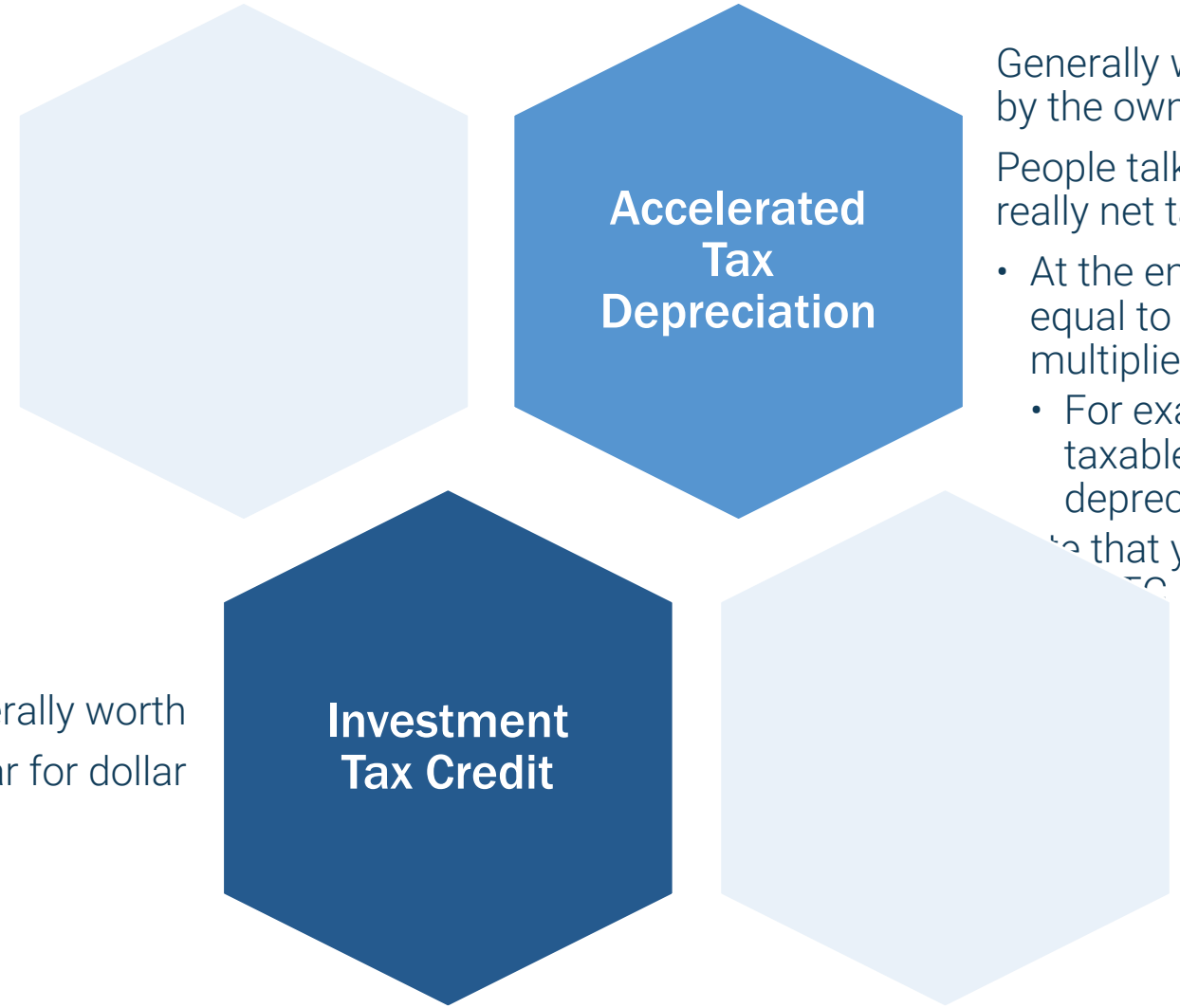
Finance and Tax Basics

Tony Grappone
Partner
Novogradac & Company LLP

Agenda


Overview of primary tax benefits for solar projects
Example of how to calculate tax benefits
Illustrating how to monetize tax benefits
Analyzing how the investor evaluates tax benefits in determining their return
Discussion of alternatives to this simplified example
Other hot topics in solar
• Storage and overview of the basic rules

Primary tax benefits for solar projects



Generally worth the amount of the deduction multiplied by the owner's effective tax rate

People talk about "depreciation" benefits however it's really net taxable income/(loss)

- At the end of the day the depreciation benefits are equal to the owner's share of net taxable loss multiplied by their effective tax rate
  - For example, if an owner is allocated $100K of net taxable loss and a tax rate of 21%, then their depreciation benefit is $21K.

...te that you have to reduce depreciable basis by 50% ... (more on that later).

Generally worth dollar for dollar

What are the tax benefits worth and how are they monetized?

- Assume that you're building a project that will ultimately cost $11,000,000 to become operational
- Assume that, as part of the financing, you're trying to raise $2,800,000 from a tax equity investor
- Assume you're trying to offer a tax equity investor a 10% after tax return on investment (ATROI)
- You've learned that tax rules require tax equity investors to stay in the deal for at least the first five years of operations.
- You've also heard that, as part of their overall expected benefits and to satisfy certain tax rules, tax equity investors require cash returns equal to
  - At least a 2% annual priority return as well as a 5% call price to exit the deal.
    - Pref: $2.8MM @ 2% = $56K per year @ 5 year minimum investment period = $280,000
    - Call exit payment: $2.8MM @ 5% = $140,000.
    - Total minimum cash to tax equity investor = $420K
    - Note: we're talking about a typical partnership flip structure

Let’s see what benefits we can offer them

First let’s look at the tax credits

- Basic example assuming a project is placed in service for a total cost of $11,000,000
- Assume 88% is eligible for the ITC, thus $9,712,510 is eligible for the ITC
- As a result, the ITC, assuming an ITC % of 26% equals $2,525,253
- Assuming up to 99% could be allocated to a tax equity partner in the amount of $2,500,000

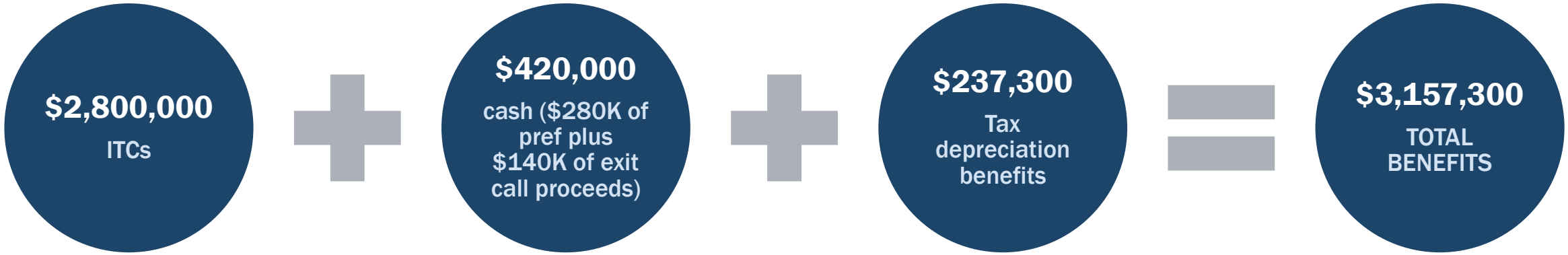
Let’s see what benefits we can offer them.

Now let’s look at the tax depreciation benefits

- Big picture, at the end of the day, the investor can only get tax benefits related to tax losses up to the amount of capital they invest, minus the ITC basis reduction and minus whatever they get back in the form of cash returns
- Therefore, if the investment is $2.8MM and their share of the ITC basis reduction is $1,250,000 ($2.5MM @ 50%).
- The max loss basis before considering cash returns would be $1,550,000.
- Next, reduce the amount above by anticipated cash returns of $420K
- Based on the above math, the max loss basis is $1,130,000.
- Multiplied the max loss basis by a 21% tax rate and you get $237,300 in max depreciation benefits.

Let’s see what benefits we can offer them.

Let’s compare the investor’s benefits to their investment and see if we’re achieving the targeted ATROI



Let’s see what benefits we can offer them.

1.13 ATROI beats the target of 1.10

- As a result the sponsor may be able to negotiate for money from their tax equity investor.
- A $2.9MM tax equity investment in this case would provide the 1.10 ATROI.

Alternatives to the above:

- Instead of ATROI, some investors prefer to analyze based on after tax IRR
- My example assumes a time based flip however some deal participants prefer a yield based flip.
- In addition to priority returns of cash, there may be additional variable cash flow that goes to the investor
- Assumed the investor is redeemed after the flip pursuant to the call option.
- My example assumes a 5% call option however in real life it's based on the FV of the investor's interest
- While most investors are bought out of the deal after the 5 year ITC recapture period, some actually prefer to stay in for the life of the partnership
- Instead of a flip, could have used an inverted lease structure. No ITC basis reduction in that structure, ITC calculated at FV and then 50d income to the credit recipients.
- Could have also used a sale leaseback structure. I featured a basic flip type scenario because it tends to be the most common

Storage and solar

- Can’t be owned by a public entity (i.e. federal government)
- Must be part of a new solar facility (can’t be standalone, which BBBA sought to change)
  - If not part of a new facility, no ITC and 7yr MACRS

- More than 75% of the battery’s charge must come from renewable energy
  - Assuming more than 75%, whatever % of the battery’s charge that comes from solar is the % used to determine the portion of the 26% ITC you qualify for
    - Battery EB of $1MM @ 26% = $260K @ 90% of battery charge that came from solar = $234K

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Tax Equity for Storage Projects

Emily Tregidgo
Senior Manager
AES Clean Energy

Tax Incentives: Solar ITC Qualifications

Solar ITC		
Date Construction Begins	**Placed in Service Date**	**ITC Amount**
Before 1/1/2020	Before 1/1/2024	30%
Calendar 2020	Before 1/1/2024	26%
Calendar 2021	Before 1/1/2024	22%
Before 1/1/2022	On or after 1/1/2024	10%
On or after 1/1/2022	Any	10%

- I.R.C. Section 48: Investment Tax Credit ("ITC")
  - The ITC is a tax credit that can be claimed on federal corporate income taxes for x% of the cost of a solar facility that is placed in service during the tax year. The ITC is available at the time a facility is placed in service.
  - Eligibility: qualifying energy property
- Begun Construction Requirement
  - The determination of when a project began construction dictates what amount of credit is available to each project. Because the credit amount can vary from year to year, this is a critical item when evaluating the risks and economics of each project.
  - Two tests to determine when construction began:
    - 5% Safe Harbor
    - Physical Work of a Significant Nature
  - Continuity Safe Harbor:
    - Both ITC and PTC projects must be placed in service within four calendar years of when construction began

Tax Equity Partnerships: Value Drivers

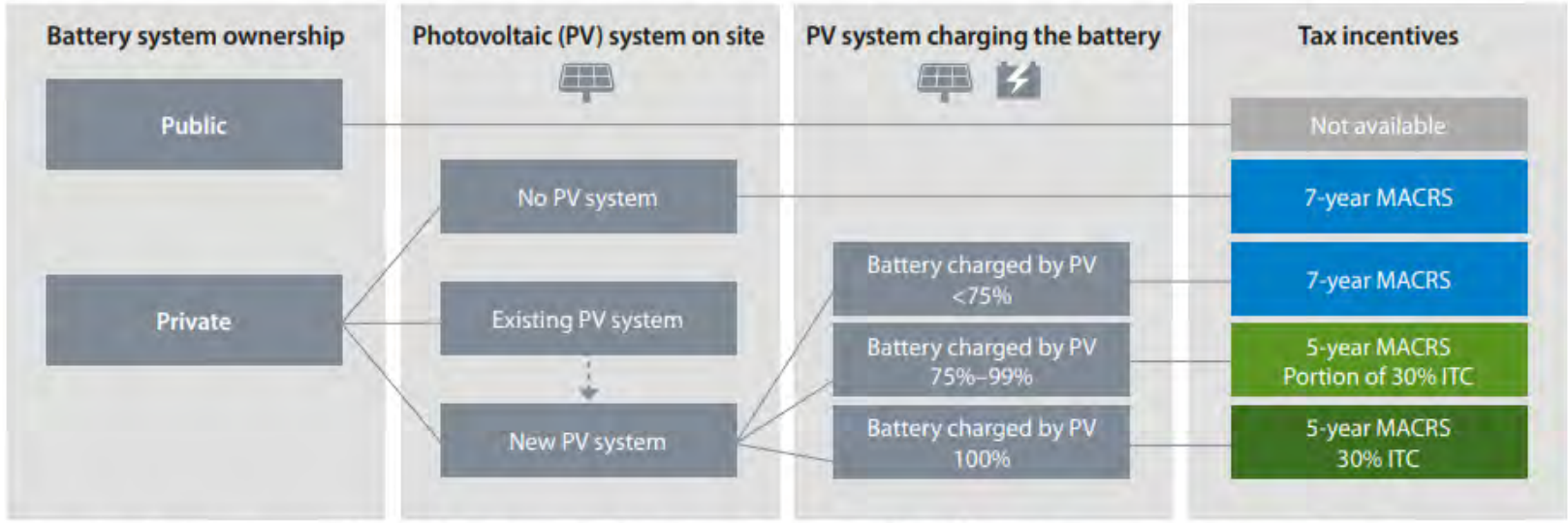
Revenue Dynamics → Tax Appetite → Monetization

- Cash distributions
- Taxable income/(losses)
- Tax credits
- GAAP earnings/(losses)

- Project developers/ sponsors have **low tax appetite** and generally cannot utilize tax benefits
- Developers/sponsors partner with companies that have **high tax appetites** to more efficiently monetize the benefits

- The amount of tax equity financing is derived from the amount of credits
- Monetization of tax credits is a large economic driver of renewable energy projects

Federal Tax Incentives For Energy Storage Systems



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ITC Qualifying Storage Facilities

Standalone Storage

- Under current tax regulations, standalone storage facilities do not qualify for the ITC
- No specific guidance regarding depreciation schedule (MACRS treatment)
- As such standalone storage projects can be more expensive for the sponsor

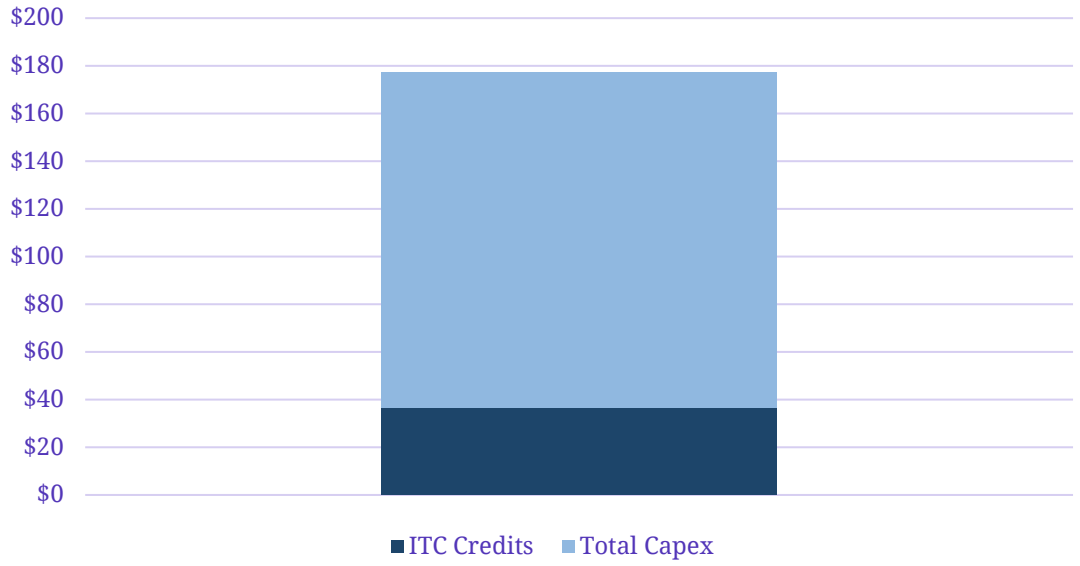
Solar + Storage

- Solar + storage projects do qualify, under certain conditions:
  - 75% Cliff (charging requirement)
  - Construction begun requirement applies for solar + storage facilities
- Eligible for 5-year MACRS
- Enables the participation of a tax equity partner, and effectively reduces upfront costs for the sponsor

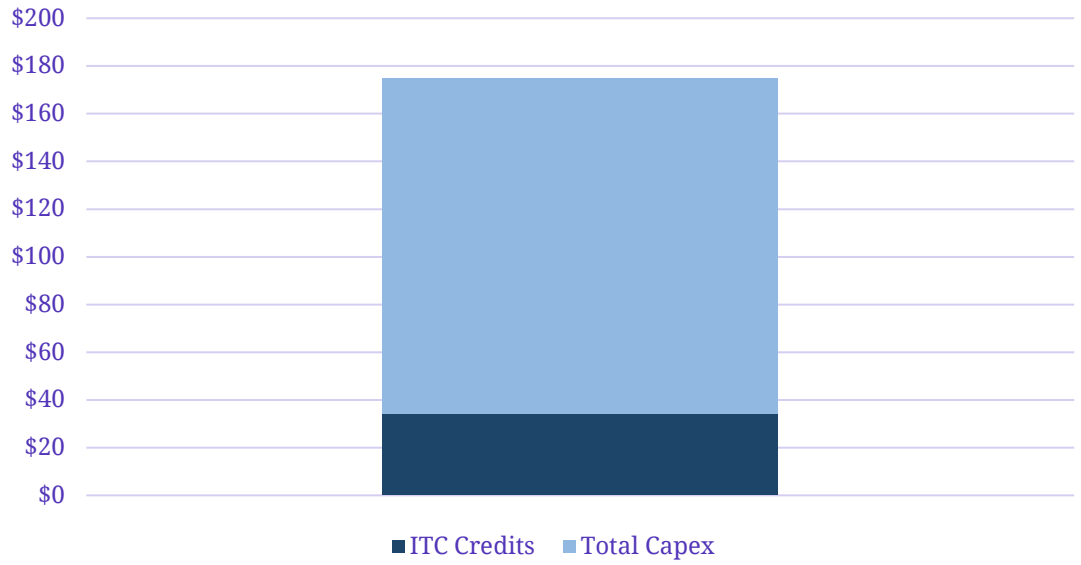
Source: NREL, https://www.nrel.gov/docs/fy18osti/70384.pdf

Structuring and Sample Calculation

100 MW PV + 50MW BESS; 100% Charging from Renewables



100 MW PV + 50MW BESS; 80% Charging from Renewables



The percentage of charge from renewables and revenue streams informs structuring

Pricing, Challenges, and Landscape

Pricing

- Generally size TE for coupled systems assuming 100% of the battery will be charged from the system; there are risks if this is not the case
- TE pricing is generally in-line with TE for PV-only systems (investor can be protected from risks above)

Challenges

- Challenges associated with a newer technology related to engineering
- These include finding IEs with storage experience, and coming to consensus on the useful life of the batteries
- Commissioning the batteries is also more time-intensive than commissioning the PV

Landscape

- Build Back Better – the potential for a standalone storage ITC Credit
- Developers have found ways around a lack of standalone storage ITC credit for those systems: sourcing “green” electrons for charging

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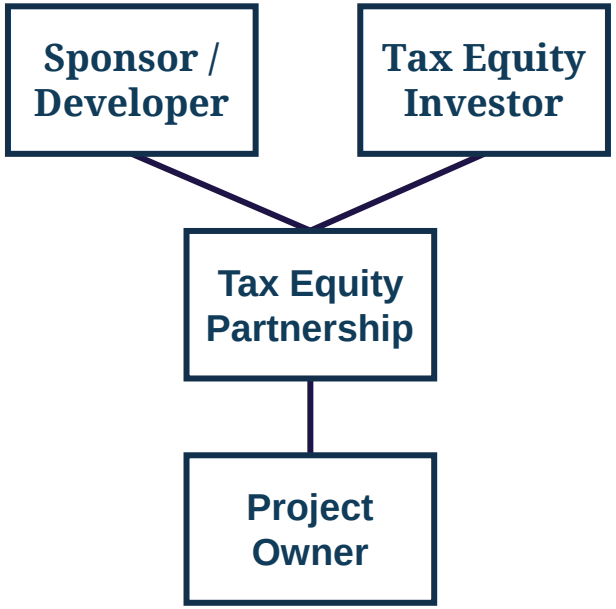
Debt and Tax Equity

Shariff Barakat
Partner
Akin Gump Strauss Hauer & Feld LLP

Tax Equity

<u>Cash distributions</u>
Period 1: 100%
Period 2: 0%
Period 3: 95%

<u>Taxable income (loss)</u>
Period 1: 1%
Period 2: 1%
Period 3: 95%



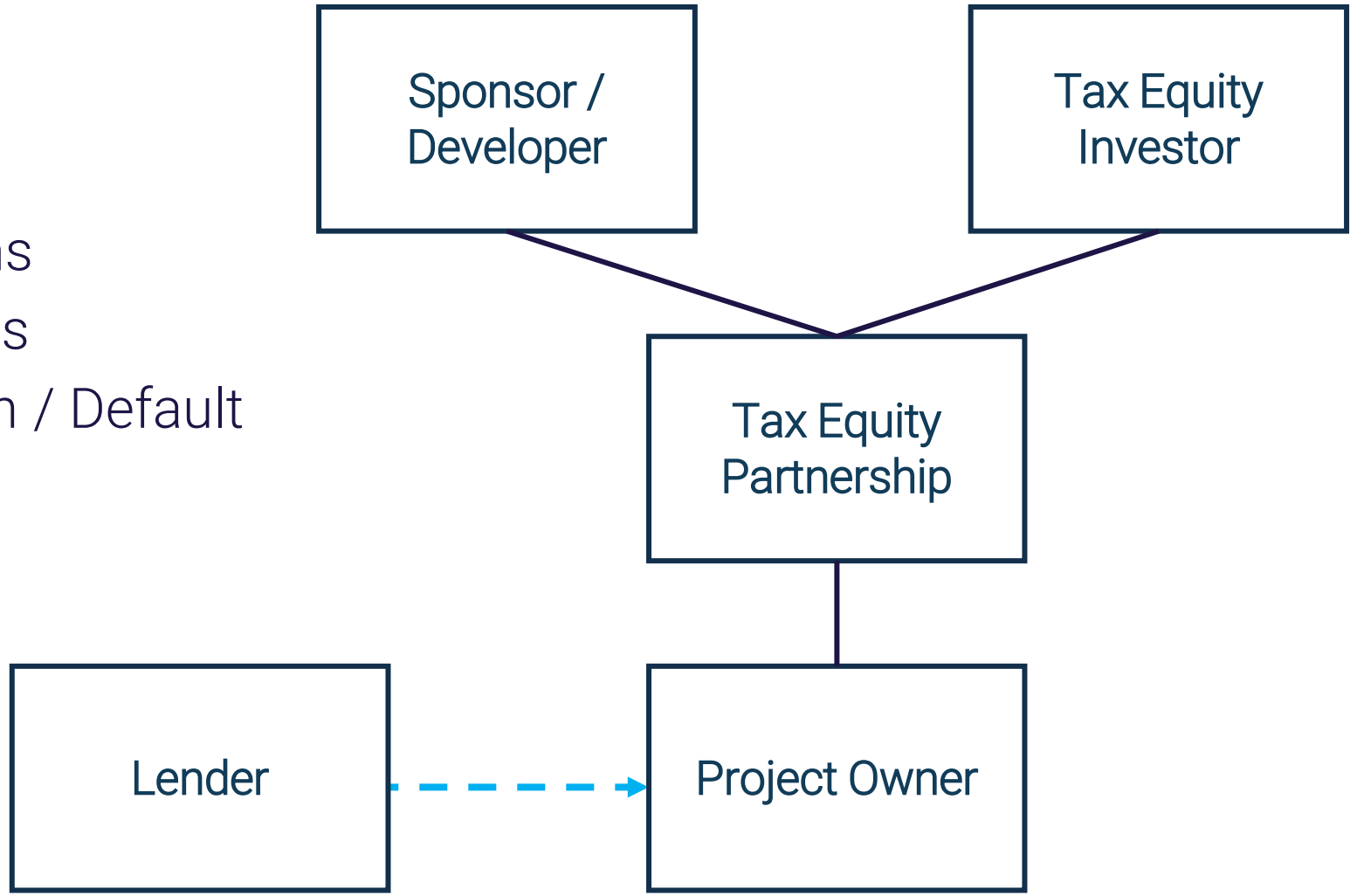
<u>Cash distributions</u>
Period 1: 0%
Period 2: 100%
Period 3: 5%

<u>Taxable income (loss)</u>
Period 1: 99%
Period 2: 99%
Period 3: 5%

- 99% max and 5% minimum tax allocations to tax equity investor.
- 20% of tax equity capital must be contributed as of the earlier of the project in-service date or investor admittance date, and 75% must be non-contingent.
- Sponsor allowed to have an option to purchase investor's interest for FMV.
- Sponsor cannot guarantee performance, tax structure, or generation or allocation of tax credits.

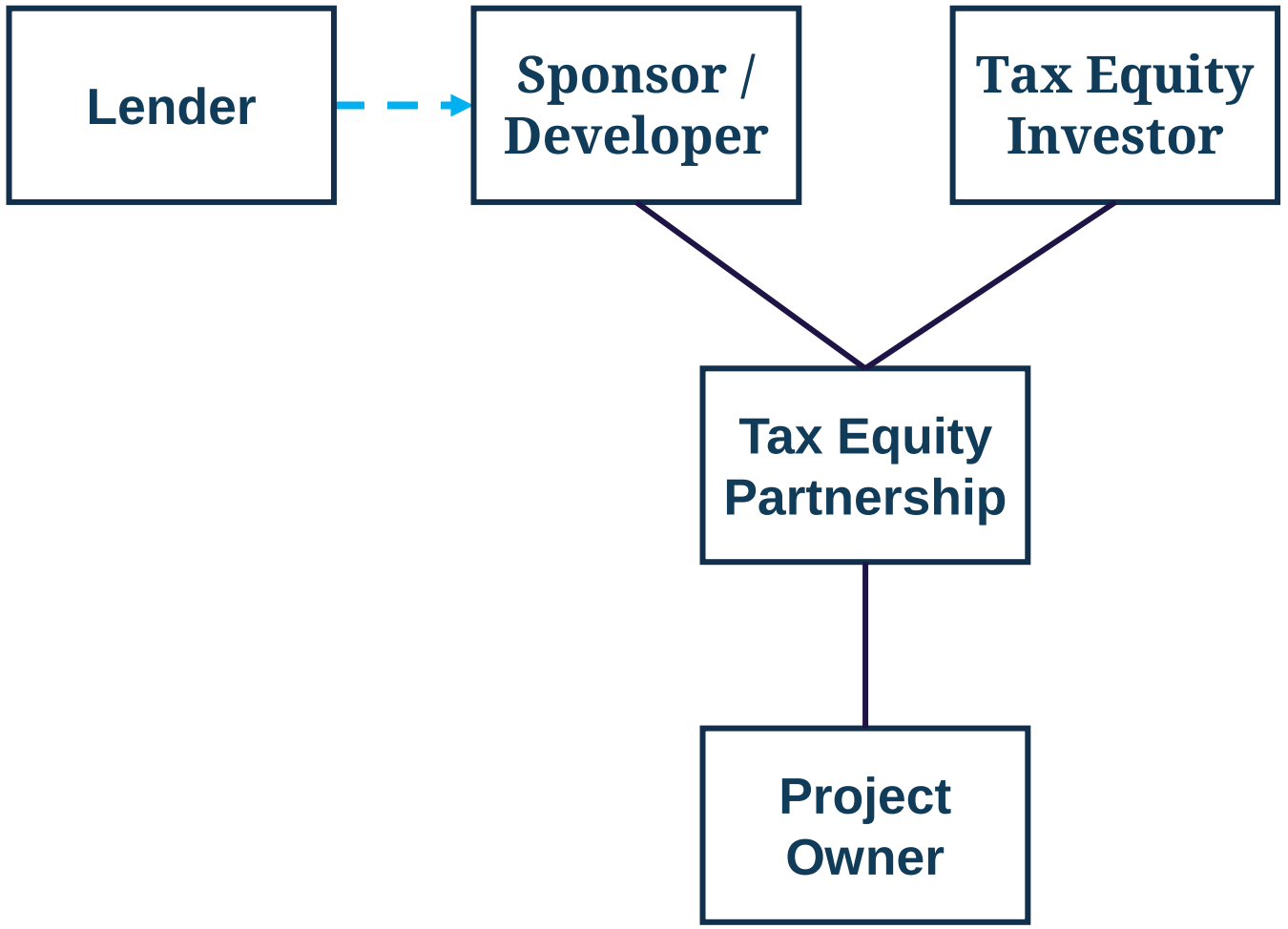
Project-Level Debt

- Key Issues:
  - ITC Recapture
  - Partnership Allocations
  - Notice and Cure Rights
  - Cross-Collateralization / Default
  - Lender Step-in Rights



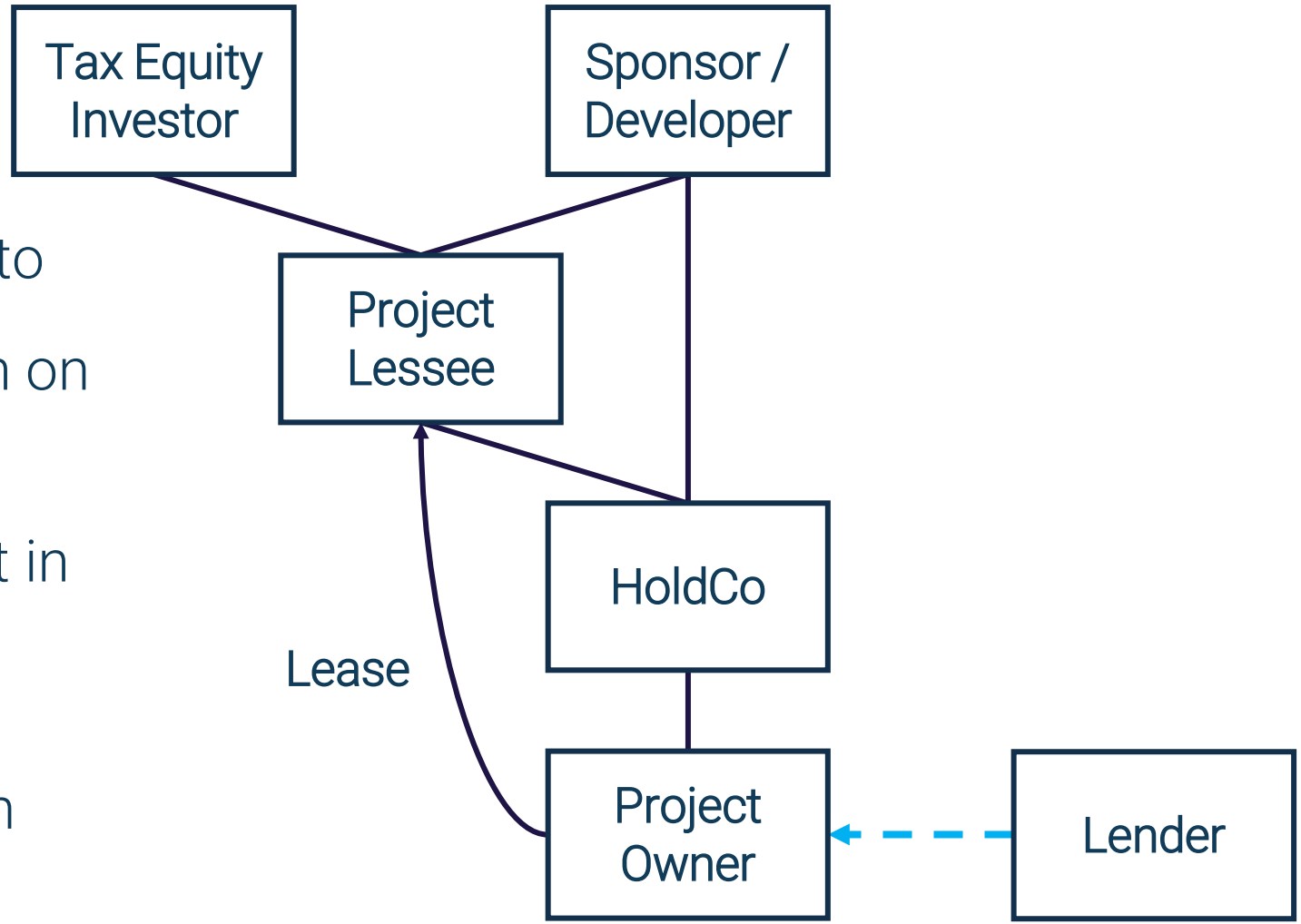
Back-Leverage Debt

- Solves:
  - Project-level recapture concerns
  - Tax allocation concerns
- Unique Issues
  - Cash diversion restrictions
  - Transfer / Foreclosure mechanics



Inverted Lease / Lease Passthrough Debt

- Mix of Features
  - Rent often structured to meet debt service, but lender loses first claim on cash flow
  - Lender can sell project in foreclosure subject to lease
  - Collateral package can impact tax structure requirements



C&I / DG

- More common to see project-level term debt
- State-specific regulatory environment and incentives are key
- Growing volume of community solar
- Growing volume of solar + storage

Lender & Tax Equity Interparty Agreements

1	2	3
Notice and Cure – Lender often has step-in rights	Notice and Cure – Lender often has step-in rights	Notice and Cure Lender and Tax Equity each often have notice and cure rights. For back leverage, lender usually has step-in
No forbearance – 20% contribution refunded in foreclosure	"Partial" forbearance – Requirements regarding 20% contribution vary	"Full" forbearance – limited exceptions may apply

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