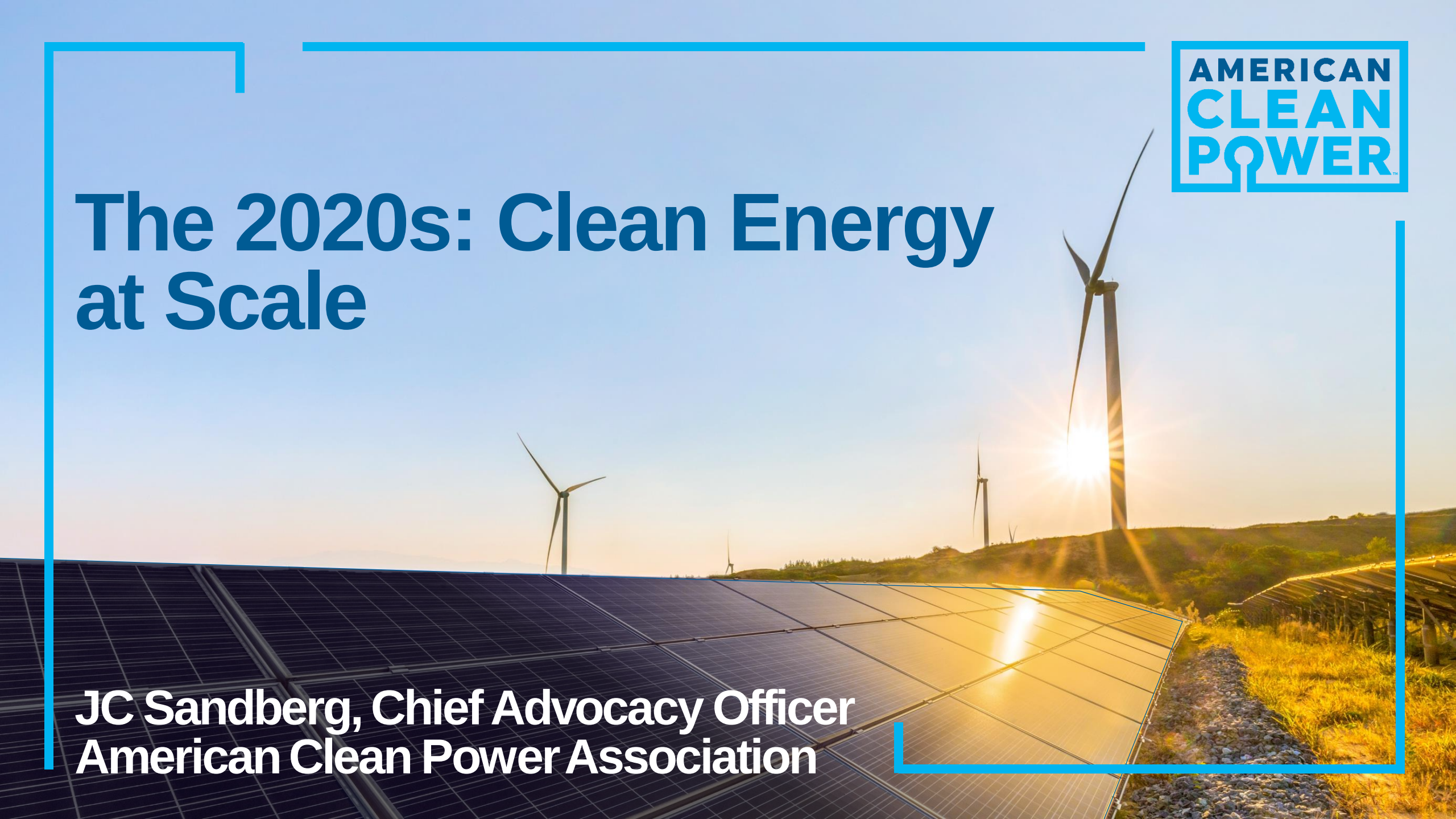
The 2020s: Clean Energy at Scale



JC Sandberg, Chief Advocacy Officer
American Clean Power Association

American Clean Power Association (ACP) Introduction

A new multi-technology association to represent the clean energy industry

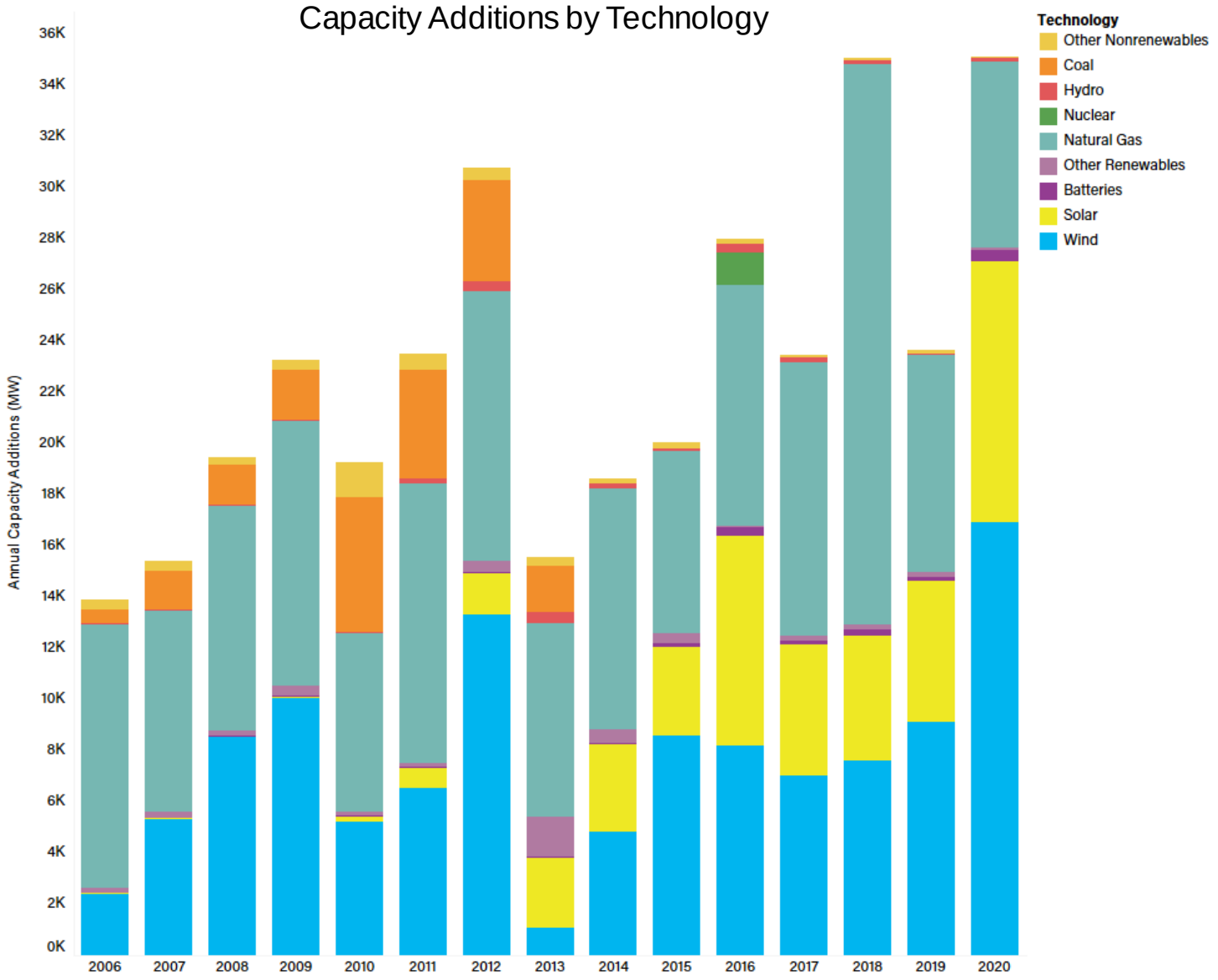
ACP is the voice of companies from across the clean power sector that are powering America's future and providing cost-effective solutions while creating jobs, spurring massive investment in the U.S. economy, and driving high-tech innovation across the nation.

- **800 member companies and growing**
- **Wind, solar, storage, transmission**

Growth of Clean Energy

Clean power captured 78% of utility-scale power additions in 2020

- U.S. clean energy added in 2020:
  - Wind: 16,913 MW
  - Solar: 10,207 MW
  - Batteries: 428 MW
- Wind captured 48% of utility-scale power installations in 2020, while solar captured 29%

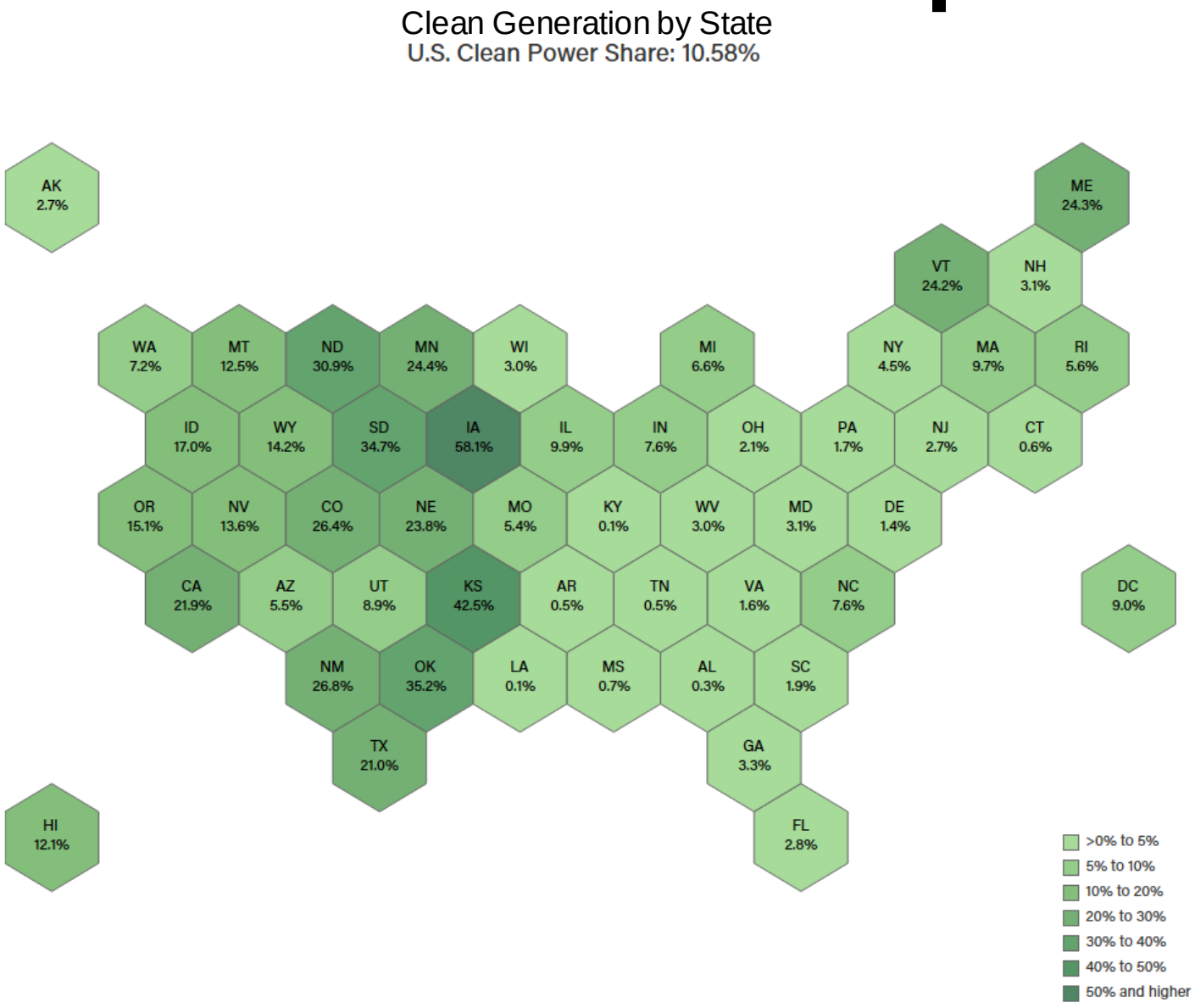


(ACP Clean Power Annual 2020 Report)

Share of State Generation

Iowa leads the U.S. with over 54% of power generated from utility-scale solar and wind energy

- Kansas follows with nearly 43% clean power
- Three other states generate more than 25% of their power from clean sources
- Over 10% of U.S. electricity is generated from wind and utility-scale solar



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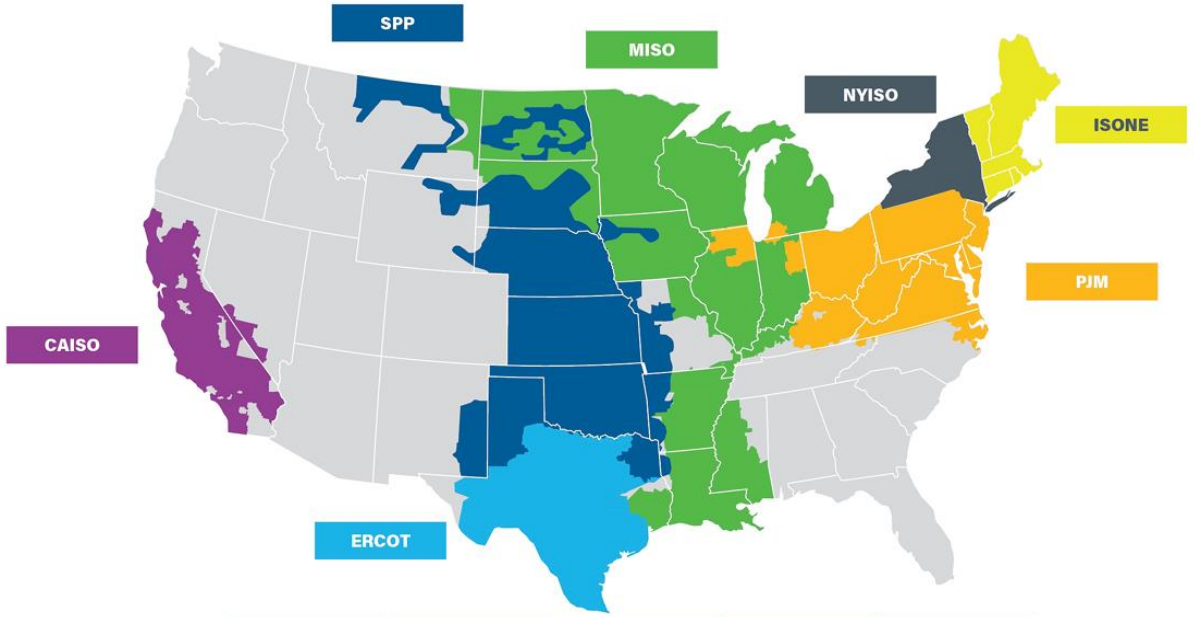
RTO/ISO Integration

RTO/ISO Wind and Solar Records



		CAISO	ERCOT	SPP	MISO	PJM	NYISO	ISONE
WIND	Installed Wind Capacity (MW)	6,952	31,781	27,448	26,412	9,666	1,985	1,626
	Record Wind Output (MW)	5,754	22,893	21,133	20,699	8,961		1,238
	Record Wind Output Date	May (2021)	1/14/21	3/29/21	3/30/21	1/21/21		2/25/21
	2020 Wind Generation Share		23%	31%	10%	3%	3%	4%
	Record Wind Penetration	23%	60%	82%	28%	12%		12%
	Record Wind Penetration Date	April (2019)	1/30/21	3/29/21	11/1/20	5/2/21		5/10/20
SOLAR	Installed Solar Capacity (MW)	14,106	5,747	424	464	4,628	2,251	1,646
	Record Solar Output (MW)	13,205	4,768	230		2,900		1,478
	Record Solar Output Date	May (2021)	1/27/21	5/5/20		5/2/21		3/13/21
	2020 Solar Generation Share		2%	>1%	<1%	<1%		2%
	Record Solar Penetration	52%	12.1%	1%		4%		6%
	Record Solar Penetration Date	June (2020)	1/27/21	4/19/20		5/2/21		5/1/21

(ACP Clean Power Annual 2020 Report)

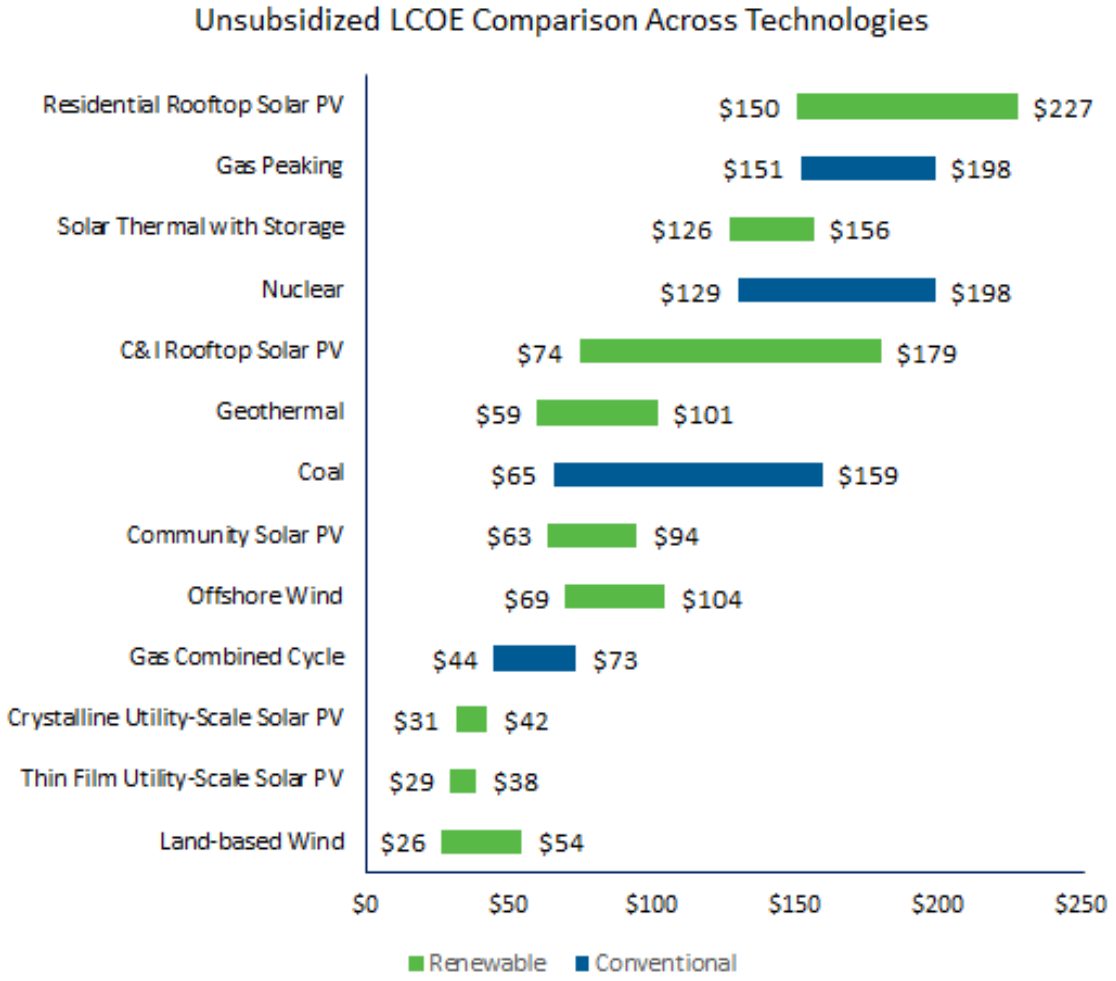
Clean power continues to set records

- Wind and solar generation increased in every regional market in 2020
- Wind became the largest provider of electricity in SPP, delivering 31% of the market's electricity in 2020
- Generation and instantaneous penetration records were set in every market by both technologies in 2020.
- Market operators are proving they can reliably integrate renewable power resources on a large-scale.

Demand: Competitive Economics

Wind and solar are now the lowest cost power in many parts of the country with costs projected to continue falling

- **Onshore wind and solar have the lowest LCOE projected for 2025 (EIA)**
- **Storage costs are also falling rapidly and can compound savings for renewables**
- **Areas with strong renewable energy portfolios are expected to maintain the lowest prices or see reductions**

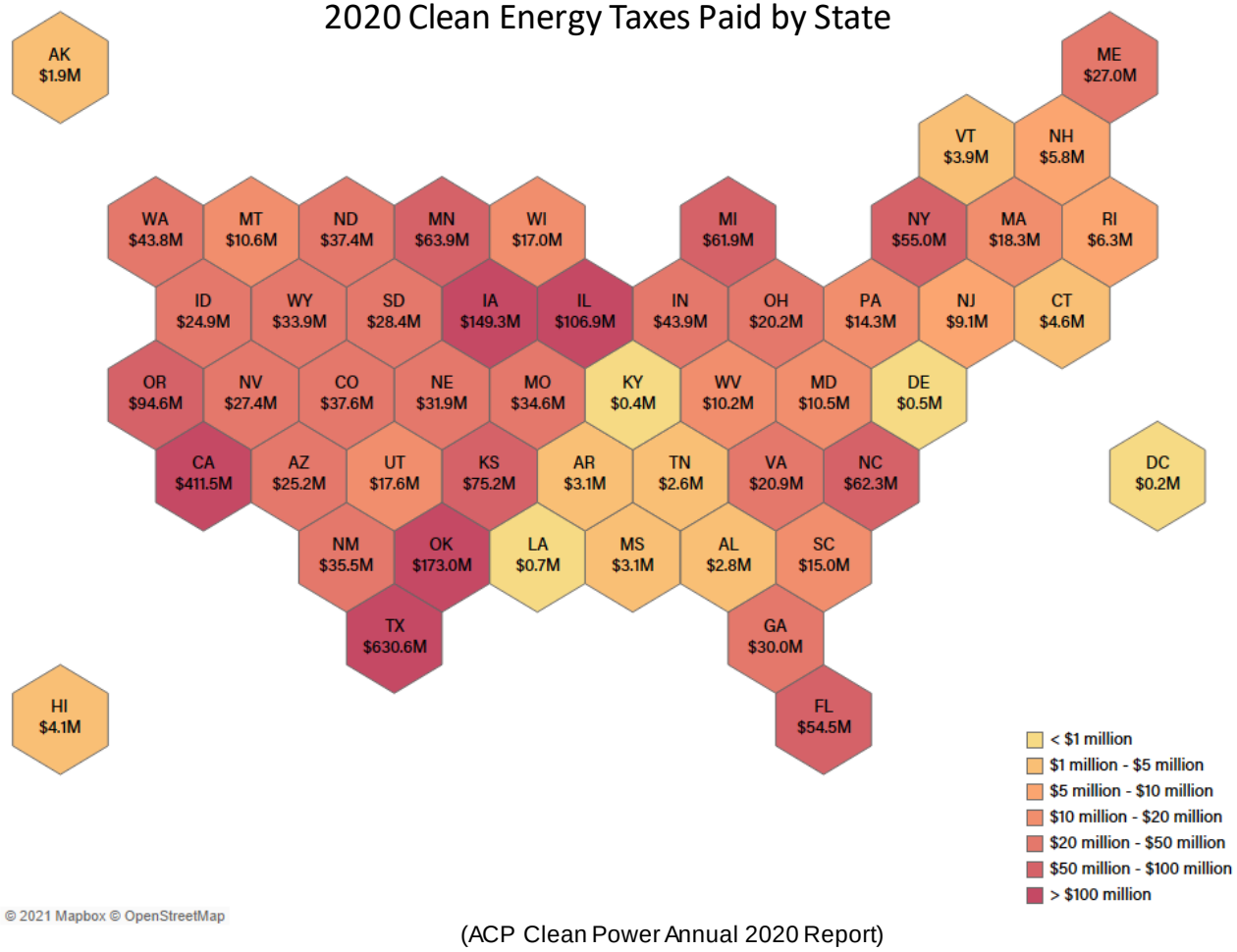


(Lazard, *Levelized Cost of Energy Analysis Version 14.0*, 2020)

Investment and Growth Brings Along Communities

The clean energy industry paid over $2.6 billion in state and local taxes and lease payments to landowners across the U.S. in 2020

- **$800 million in land lease payments and $1.7 billion in state and local taxes in 2020**
- **Nearly 80% of U.S. clean power capacity is installed in low-income counties, with median household income below the national median**
- **Clean energy provides jobs for more than 415,000 Americans**



(ACP Clean Power Annual 2020 Report)

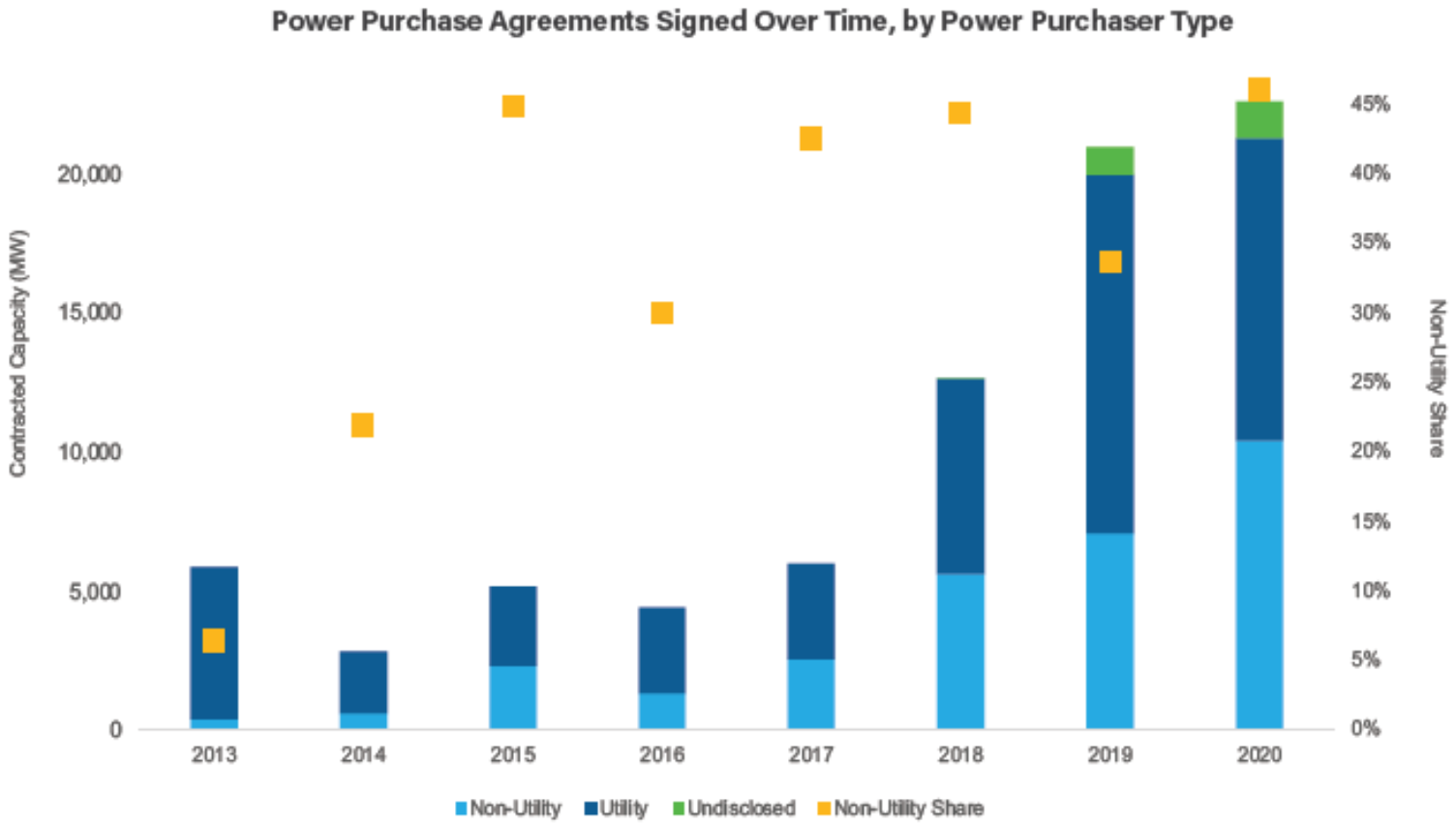
Demand Continues to Accelerate: C&I

Large corporate and industrial consumers are turning to clean energy

- Non-utility power purchase agreements now almost equal utilities
- This includes: Google, AT&T, Walmart, Facebook, McDonald's, Kimberly-Clark, Amazon, ExxonMobil, Dow Chemical...

Power Purchase Agreement Announcements by Buyer Type

Utility and C&I customers both contracted over 10 GW of new clean power in 2020



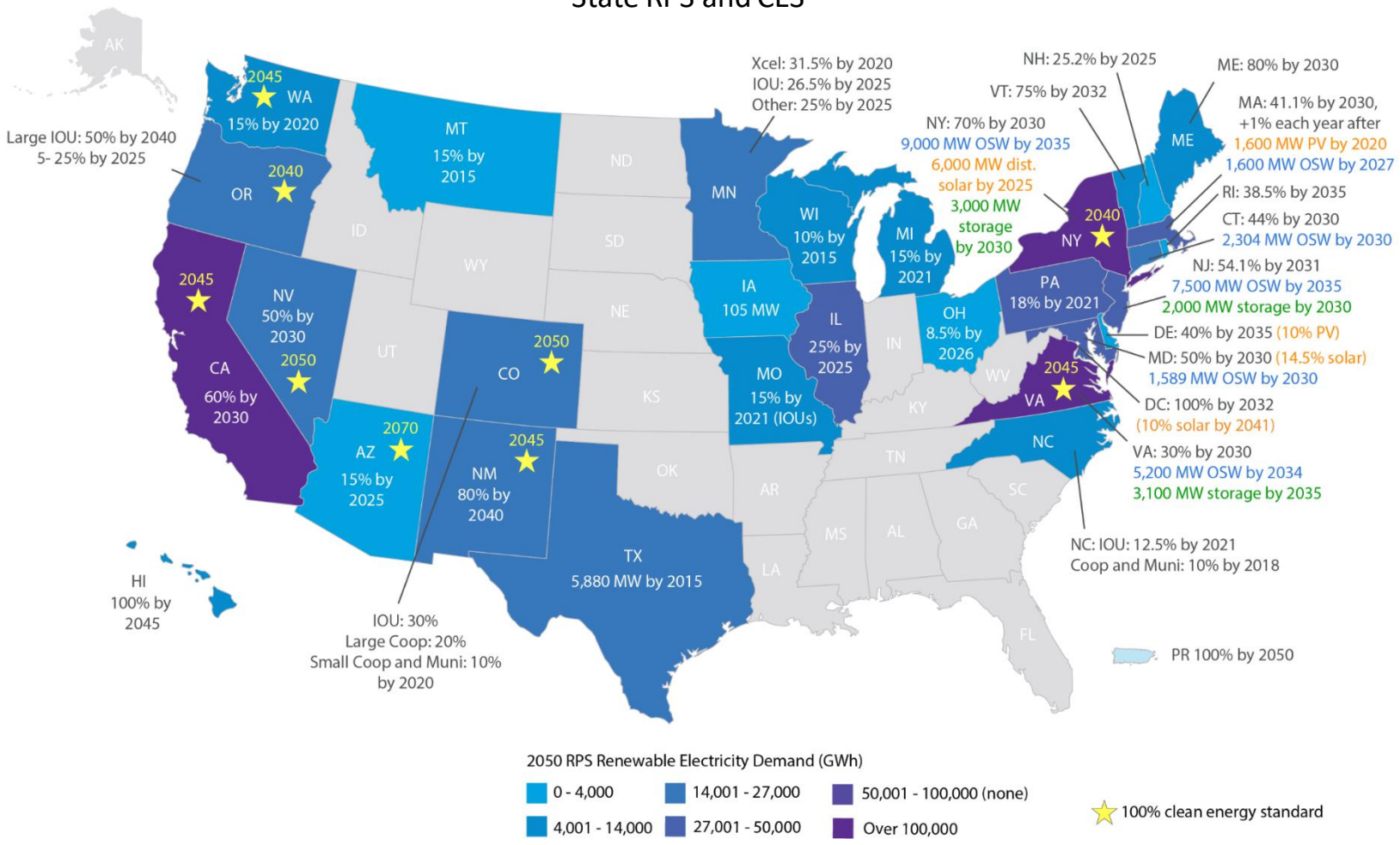
(ACP Clean Power Annual 2020 Report)

Demand: RPS / CES

State policies are creating tremendous demand for clean energy

- 30 states, DC, and PR have RPS/CES policies
- By 2050, state RPS demand will reach about 837 TWh / roughly 240 GW

State RPS and CES



(ACP Clean Power Annual 2020 Report)

Addressing Challenges Real and Perceived

Renewables are reliable and constantly evolving to provide additional services to the grid.

- **Reliability**
  - **Weather forecasting**
  - **Advancements in energy storage and hybrid projects**
  - **Increased transmission connections and broader markets**

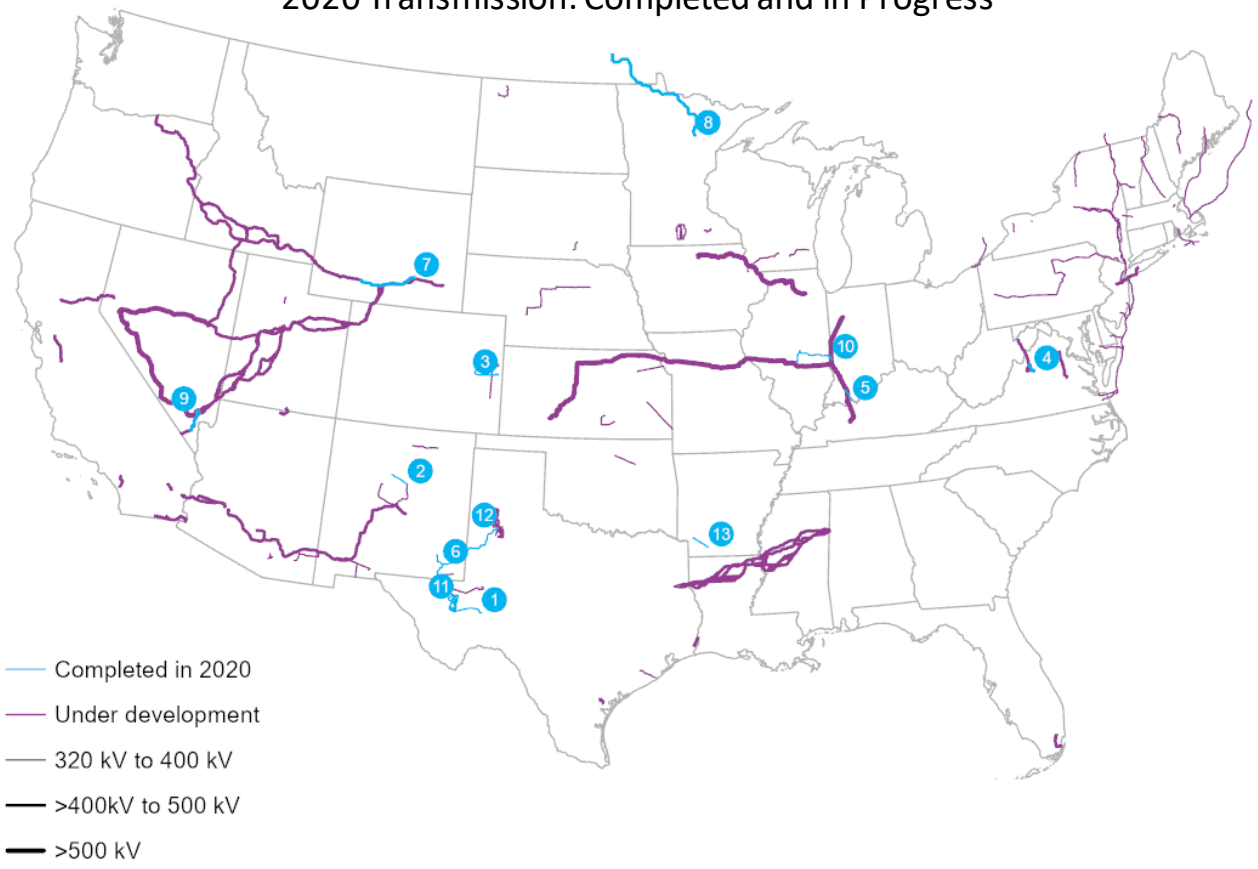
- **Ancillary services**
  - **Reliability is no longer all about meeting peak demand.**

Policies for Growth: Transmission

There are over 15,000 miles of near-term transmission projects in development that could support tens of thousands of MWs of additional renewable capacity

- **Interconnection**
  - **Clean power makes up 90% of capacity in interconnection queues**
- **Transmission needed to relieve congestion and open up access to renewable resources**
- **Planning and cost-allocation**
  - **Critical to approve and build transmission projects currently in development**

2020 Transmission: Completed and in Progress

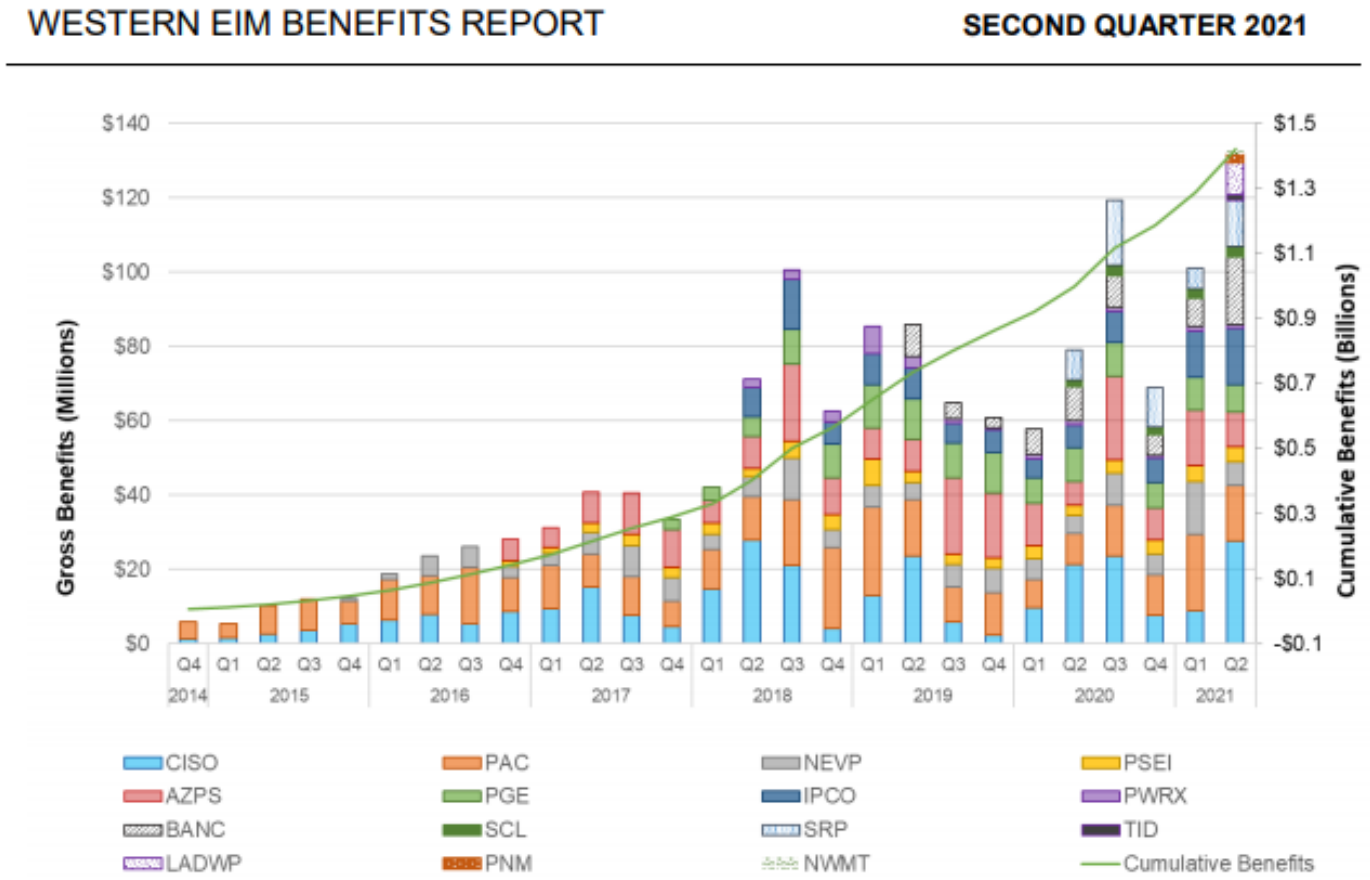


(ACP Clean Power Annual 2020 Report)

Policies for Growth: Markets

Transmission connections enable free trade and cost savings from broader regional markets.

- Free and competitive markets provide affordable power to consumers
- Expand the success of RTOs
  - $1.42 billion in benefits from CAISO's WEIM since 2014
  - Tremendous opportunities in these regions for cost savings to consumers.
  - Eliminate the need for redundant resources and other inefficiencies
  - Substantial long-term rural economic benefits.
- Renewables are now able to offer much more than just energy



GRAPH 1: Cumulative economic benefits for each quarter by BAA

(CAISO EIM 2Q2021 Benefits Report)

Commissions in the Driver's Seat

Commissioners can facilitate an efficient energy transition with the tools available, building the fleet and grid of the future

- Securitization
- Integrated Resource Plans (IRPs)
- Transmission approval
- Stakeholder groups
- Participation in regional markets planning
- Collaborative efforts such as the FERC and NARUC joint taskforce

Federal Highlights

Infrastructure Bill

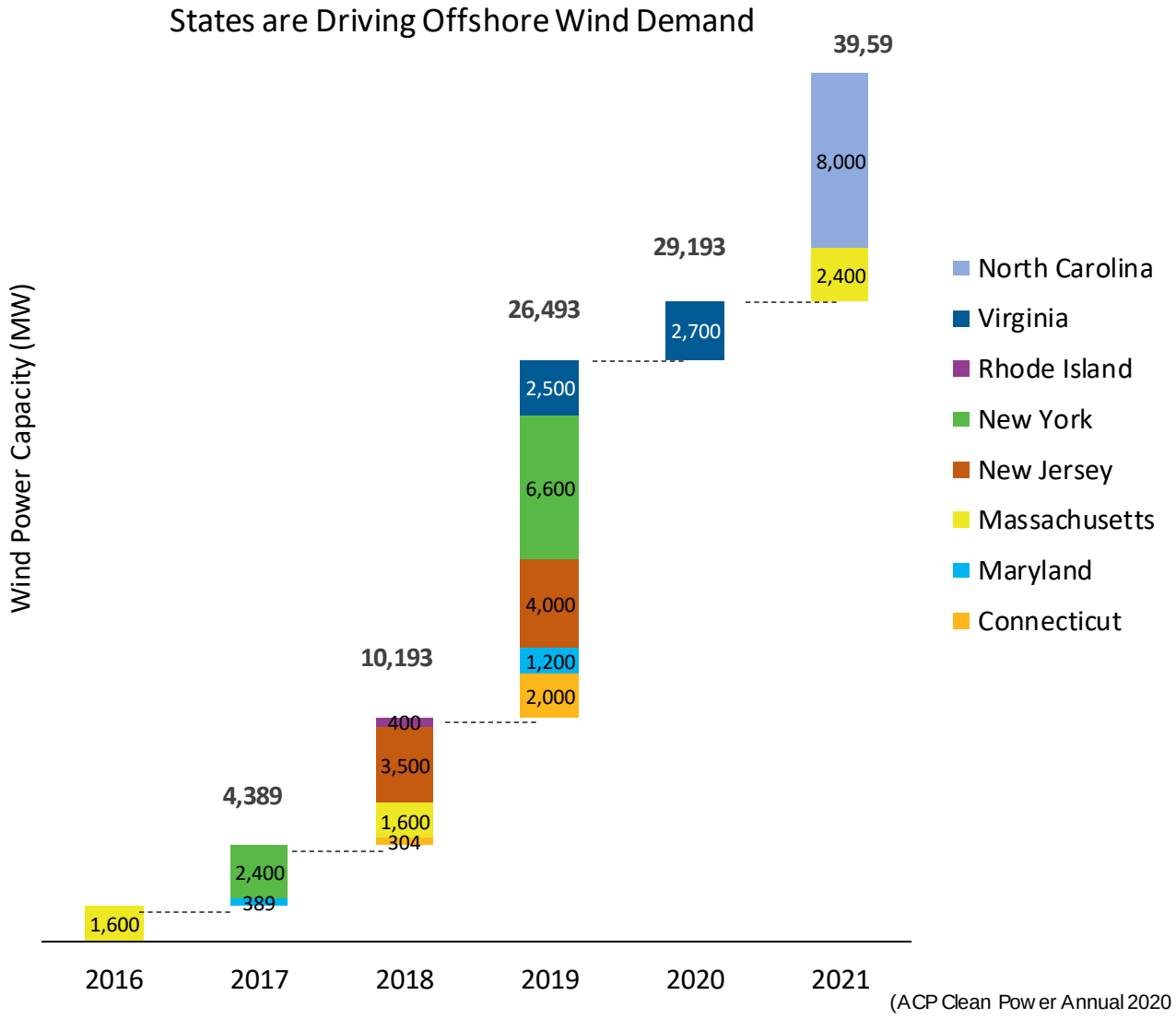
Updates from the current Senate version

- Section 40105 – National Interest Electric Transmission Corridors (backstop siting)
  - Creates a narrow fix to existing law
  - Never been used to date, could be a future tool
- Section 40106 – Transmission Facilitation Program / Anchor Tenant
  - Could allow DOE to help lines get financing
  - Currently limited funding

Offshore Infrastructure and Investment

States have established nearly 40 GW of offshore wind procurement targets through legislation, conditional targets, or executive orders

- **U.S. offshore wind means U.S. jobs, manufacturing, and infrastructure**
- **Deploying 30 GW of offshore wind by 2030 could generate roughly 400,000 job-years during construction**
- **Offshore wind Industry is committing to significant domestic content as the industry grows.**

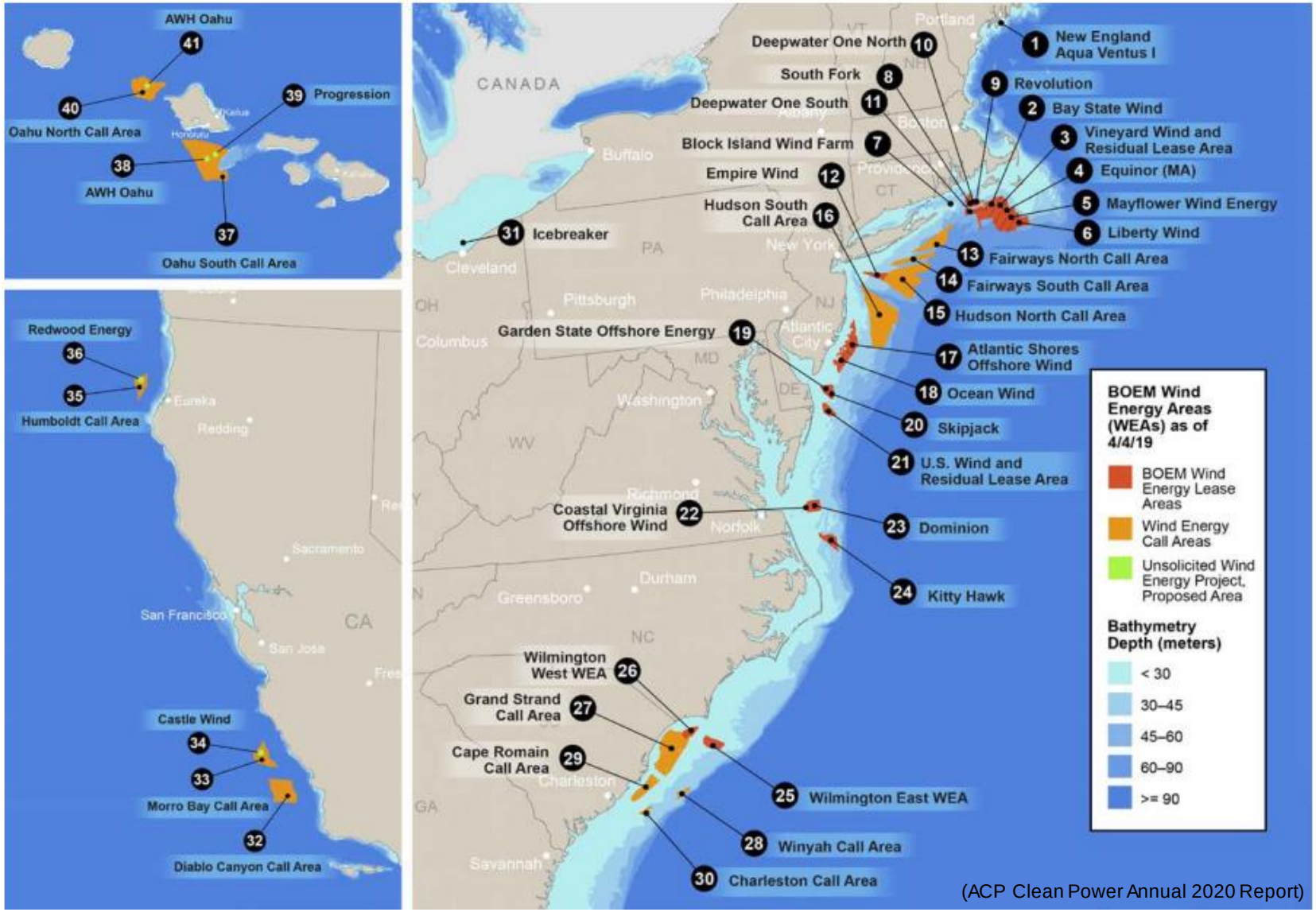


(ACP Clean Power Annual 2020 Report)

Offshore Opportunities

18 active federal leases issued; more planned for future actions

- Up to 8 additional lease areas in the NY Bight likely to be sold in late 2021 or early 2022
- In California, the Humboldt and Morro Bay areas are being advanced as WEAs that can then move forward in the lease sale process, with a mid-2022 target sale date
- In June 2021, BOEM released an RFI to assess interest in commercial leasing for wind energy development on the Gulf of Mexico



(ACP Clean Power Annual 2020 Report)

Summary and Conclusions

Clean energy is leading the way in U.S. emissions reductions and creating jobs, consumer savings, and vast investment in local communities along the way.

Thank you.

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Appendix: Congressional Districts

Clean power projects and/or manufacturing are present in 84% of U.S. congressional districts

- Clean power is red, white, and blue with projects or manufacturing facilities in 84% of congressional districts and jobs in all 50 states
- These districts feel the local economic benefits of wind, solar, and battery storage