

# STATE OF THE US MARKETS



## Green-e® Energy Reporting Year 2023

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CENTER FOR RESOURCE SOLUTIONS

# Intro to Green-e.

**WHO BUYS GREEN-E?**

**WHO SELLS GREEN-E?**

**WHY IS GREEN-E VALUABLE?**

**WHAT BENEFITS DOES GREEN-E  
PROVIDE SELLERS & BUYERS?**

# Who Buys Green-e?

**1.3 million retail purchasers** buy Green-e® certified renewable energy, including **298,000 businesses**, including some brands you may know:



## Who Buys Green-e?

**Among the 298,000 business purchasers** of Green-e® certified renewable energy, are over 53 colleges and universities, 44 cities and municipalities **and 776 companies, institutions, and buildings that buy >10,000 MWh annually**



# Who Sells Green-e?

**181 companies sold over 125 million in retail MWhs from 247 certified products in 2023**

3Degrees Inc. 3Phases Renewables ACT Commodities, Inc. AEP Energy, Inc. Agendi Inc. Aggressive Energy Algonquin Power ALLETE Clean Energy Ambit Energy Holdings LLC Ameren Missouri American PowerNet Ampion Anew Anthesis Group Austin Energy Avangrid Renewables Azalea Solar, LLC Basin Electric Power Cooperative Blue Delta Energy Blue Source, LLC Bonneville Environmental Foundation BP Energy Company Bridge to Renewables, LLC Brookfield Renewable Bullfrog Power Collective Energy Caely Renewables Calpine Energy Solutions, LLC Carbon Solutions Group Carbonvert Inc. Champion Energy Marketing, LLC City of Las Vegas City of Palo Alto Utilities Clean Power Alliance CleanFuture CleanPowerSF Clear Energy Brokerage & Consulting LLC Clear Sky Ltd Clearway Energy Group Clearway Renew LLC Climate Impact Partners ClimeCo Corporation CMS Energy Resource Management Company Colorado Springs Utilities Constellation NewEnergy Cubico Sustainable Investments Ltd. Current Partners Cypress Creek Renewables Deriva Energy Services Design Management Services DESRI Holding Direct Energy Distributed Solar Development, LLC Dominion Energy Virginia DTE Electric Duke Energy Dynegy Energy Services East Bay Community Energy East Kentucky Power Cooperative, Inc. ECOHZ EDF Energy Services Elm Branch Solar 1, LLC Enel Trading North America, LLC Enel X Engie Energy Marketing NA ENGIE Generation North America LLC Entergy Arkansas Entergy Louisiana Entergy New Orleans Entergy Texas Fern Solar LLC First Climate Markets AG FirstEnergy Solutions Corp. Freepoint Energy Solutions Frontier Windpower II, LLC GO2 Markets Green Mountain Energy Green Power EMC GreenEnergy GPO Greenlight Energy Group LLC Harrison Renewable Energy Hero Power Hudson Energy Services, LLC Idaho Power Company Indianapolis Power & Light Company J.P. Morgan Ventures Energy Corporation Jasmine Energy JEA JERA Americas Karbone Inc. Kratos Gas & Power Liberty Power Longroad Energy Services, LLC Luminant Energy Company, LLC MC Squared Energy Services Marin Clean Energy Merrill Lynch Commodities Inc. Mesquite Star Special, LLC MidAmerican Energy Services Mitsui & Co MN8 Energy Moffett Solar 1, LLC Mozart Wind, LLC MP2 Energy Muscatine Power and Water National Grid Renewables NativeEnergy Natural Capital Partners NC GreenPower New Brunswick Energy Marketing NextEra Energy Resources Nexus Energy Northern Indiana Orlando Utilities Commission Public Service Company NRG Business Solutions NV Energy Pacific Gas and Electric PacifiCorp Peak 5 Peninsula Clean Energy Pine Gate Renewables, LLC Pivot Energy Portland General Electric (PGE) Powerex Corp Puget Sound Energy Pulse Grids Reliant Energy Retail Services Sacramento Municipal Utility District San Diego Community Power San Diego Gas & Electric San Jose Clean Energy Santee Cooper Schneider Electric Seattle City Light Serena Energy Shell Energy North America Silicon Valley Clean Energy Silicon Valley Power - City of Santa Clara Skyview Ventures Smart Charging Technologies, LLC Smartest Energy Sol Systems, LLC SolRiver Capital Solstice SourceOne South Plains Wind Energy II, LLC South Pole Group Southern California Edison SP Cactus Flats Wind Energy, LLC Spectron Energy Inc SRECTrade Statkraft US LLC Steel Dynamics Steelcase Inc. Sterling Planet STX Commodities Targray TC Energy Marketing Tennessee Valley Authority Terrapass Inc TXU Energy Uncle Frank Energy Services United Energy Trading, LLC United Green Energy Valta Energy, LLC Viant Technology Watershed We Energies Western Farmers Electric Cooperative WGL Energy Services, Inc. World Fuel Services, Inc. X-Elio Xcel Energy



# Why is Green-e Valuable?

Green-e is cited as best practice by more than 20 industry standards, NGOs, government agencies and associations.

## Green-e® International Citations



## Green-e® U.S./Canada Citations



# What Benefits Does Green-e Provide Buyers & Sellers?

- **Trusted**
- **Recognized**
- **Verifiable**
- **Transparent**
- **International**



- ✓ **3rd-party independent review and certification**
- ✓ **Environmental impact**
- ✓ **Reduction of reputational risk**
- ✓ **Trusted by reporting agencies**
- ✓ **Regulatory surplus verified**
- ✓ **Federal Option (compliant with EO 14057)**

# Outline.

**CERTIFIED SALES**

**CUSTOMERS PURCHASING**

**CERTIFIED SUPPLY**

**CERTIFIED PRODUCT TYPES**



# Key Takeaways.

**WHAT YOU NEED TO KNOW  
ABOUT CERTIFIED SALES IN  
THE 2023 REPORTING YEAR**

# Key Takeaways

2023 was the biggest year of certified sales to date.

- **More than 125 million retail MWh**, or 3.2% of the total US retail electricity sales in 2023
- **11 million more retail MWh sold than in 2022**
- **1.3 million retail purchasers** of Green-e® certified renewable energy, including **298,000 businesses**
- **25% increase** in Direct procurement
- Continued **increase of solar** as a source of supply
- **Newer renewables** (5 years old or less) continuing to drive the market

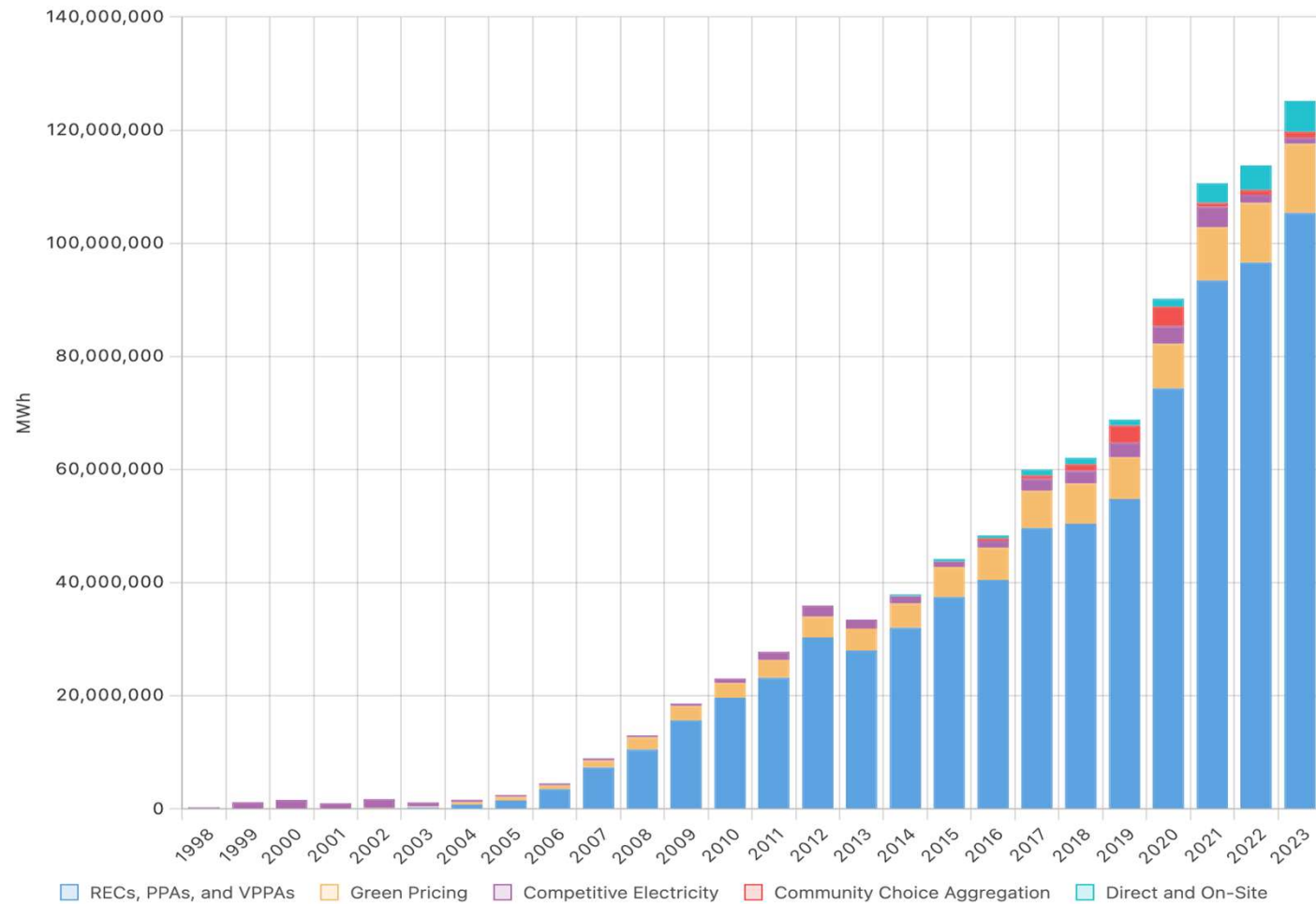
# Charts, Data and Analysis.

**VISUAL REPRESENTATION  
OF THE 2023 REPORTING  
YEAR**

# Total Certified Sales of Renewable Energy by Product Type and Customer Type

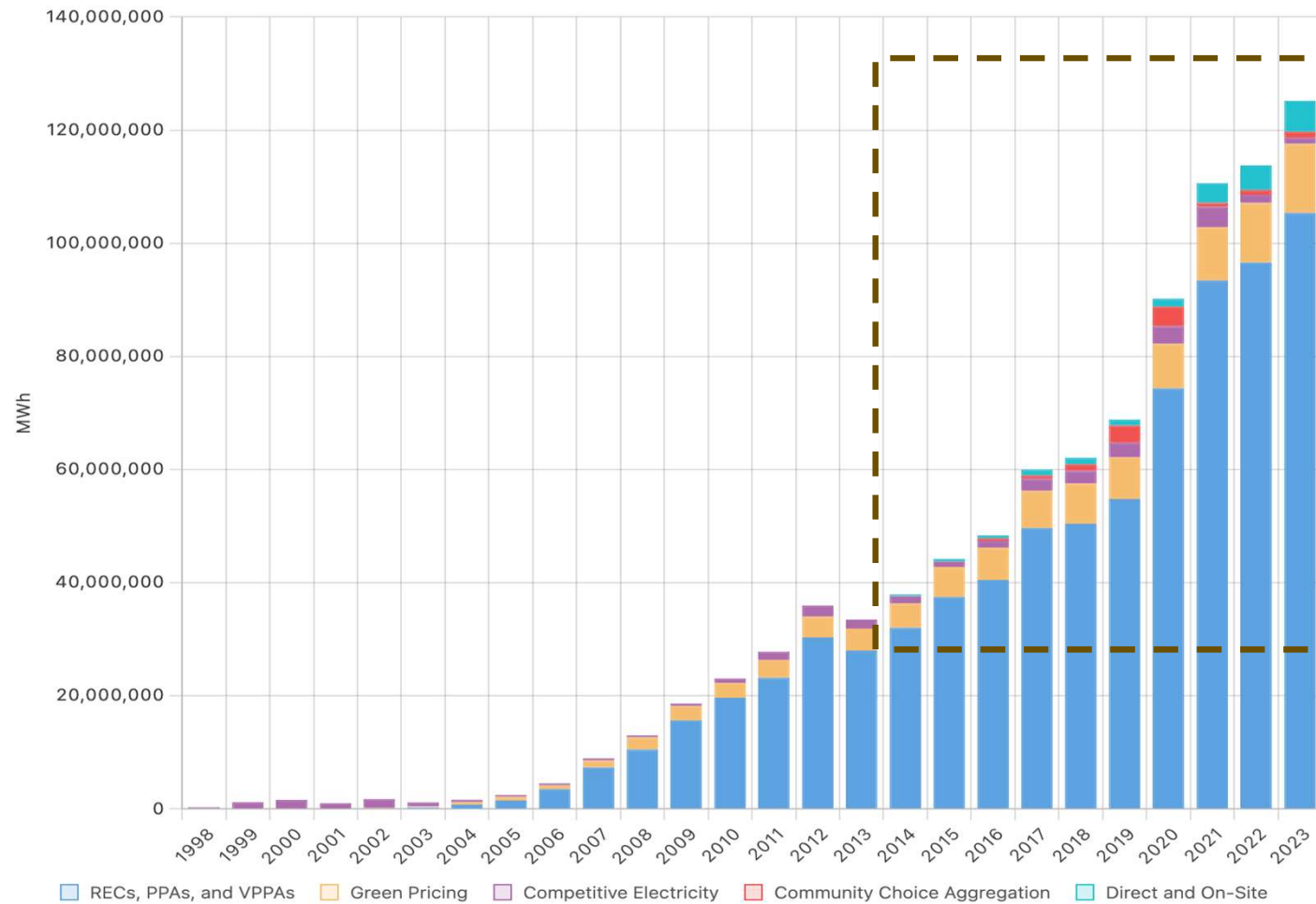
	Residential (Retail)	Non-Residential (Retail)	Wholesale
RECs, PPAs, and VPPAs	607,000	104,772,000	14,785,000
Green Pricing	4,996,000	7,219,000	
Competitive Electricity	131,000	919,000	
Direct and On-Site		5,424,000	
Community Choice Aggregation	105,000	988,000	
<b>Total Sales</b>	<b>5,839,000</b>	<b>119,322,000</b>	<b>14,785,000</b>

# Sales By Product Type, 1998 – 2023 (MWh)



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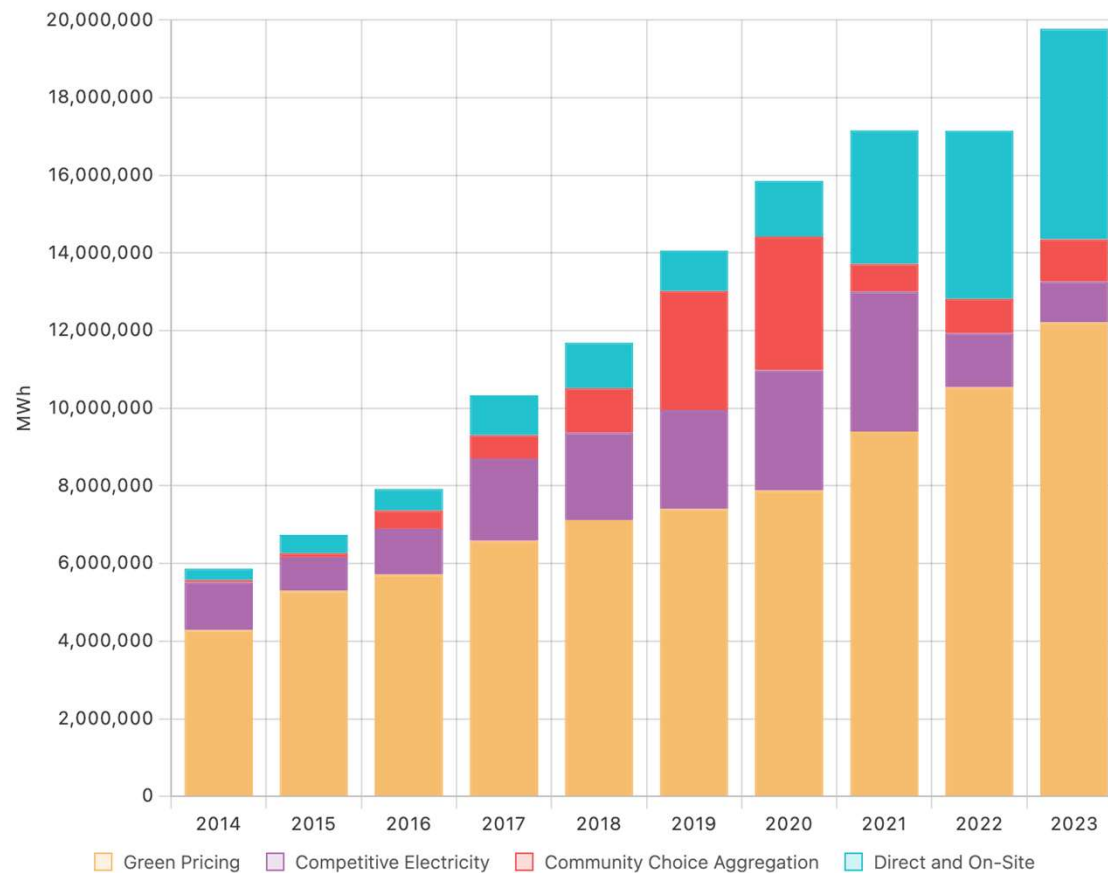
# Sales By Product Type, 1998 – 2023 (MWh)



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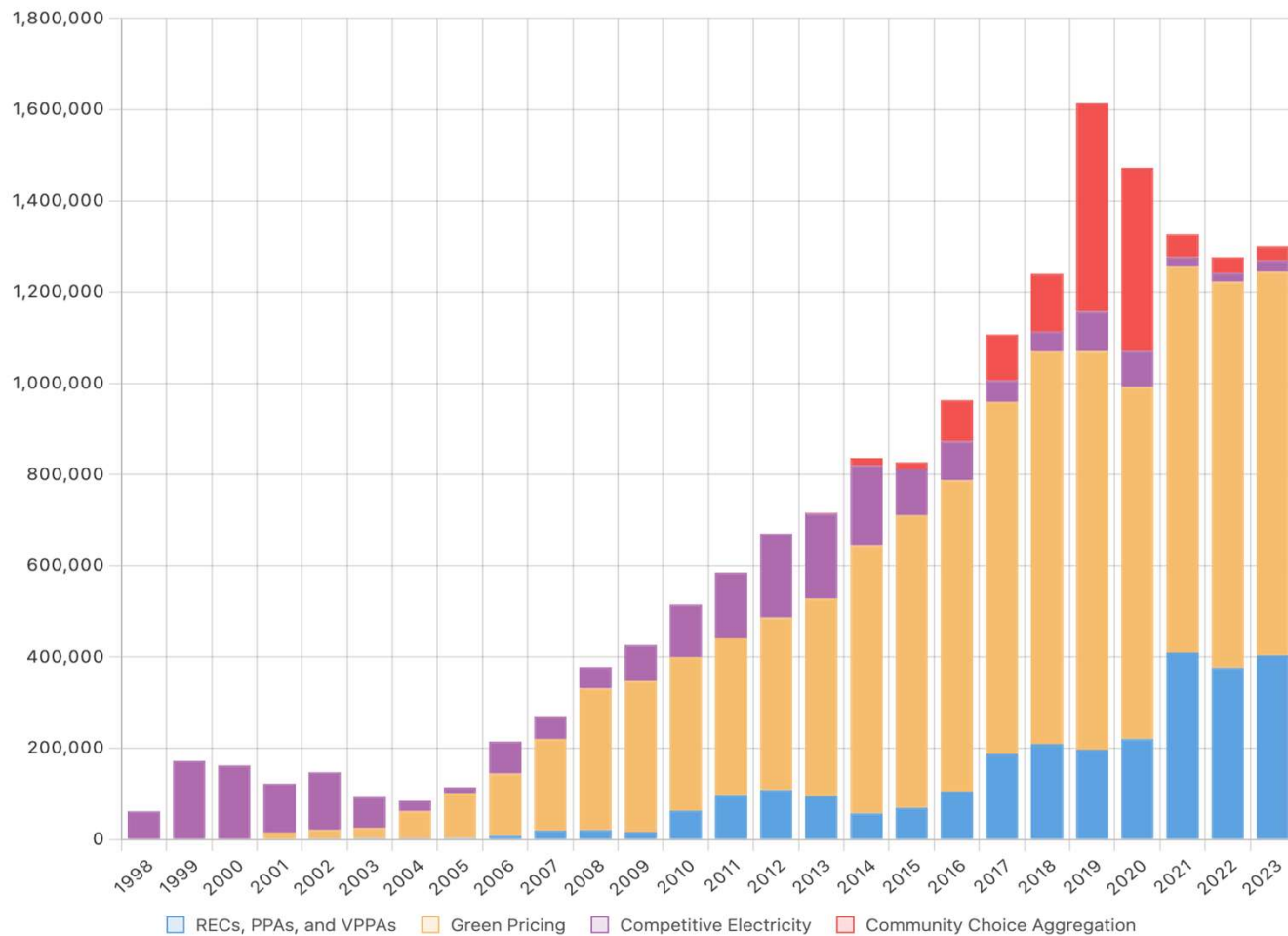


## Bundled and Direct Procurement, 2014 – 2023 (MWh)



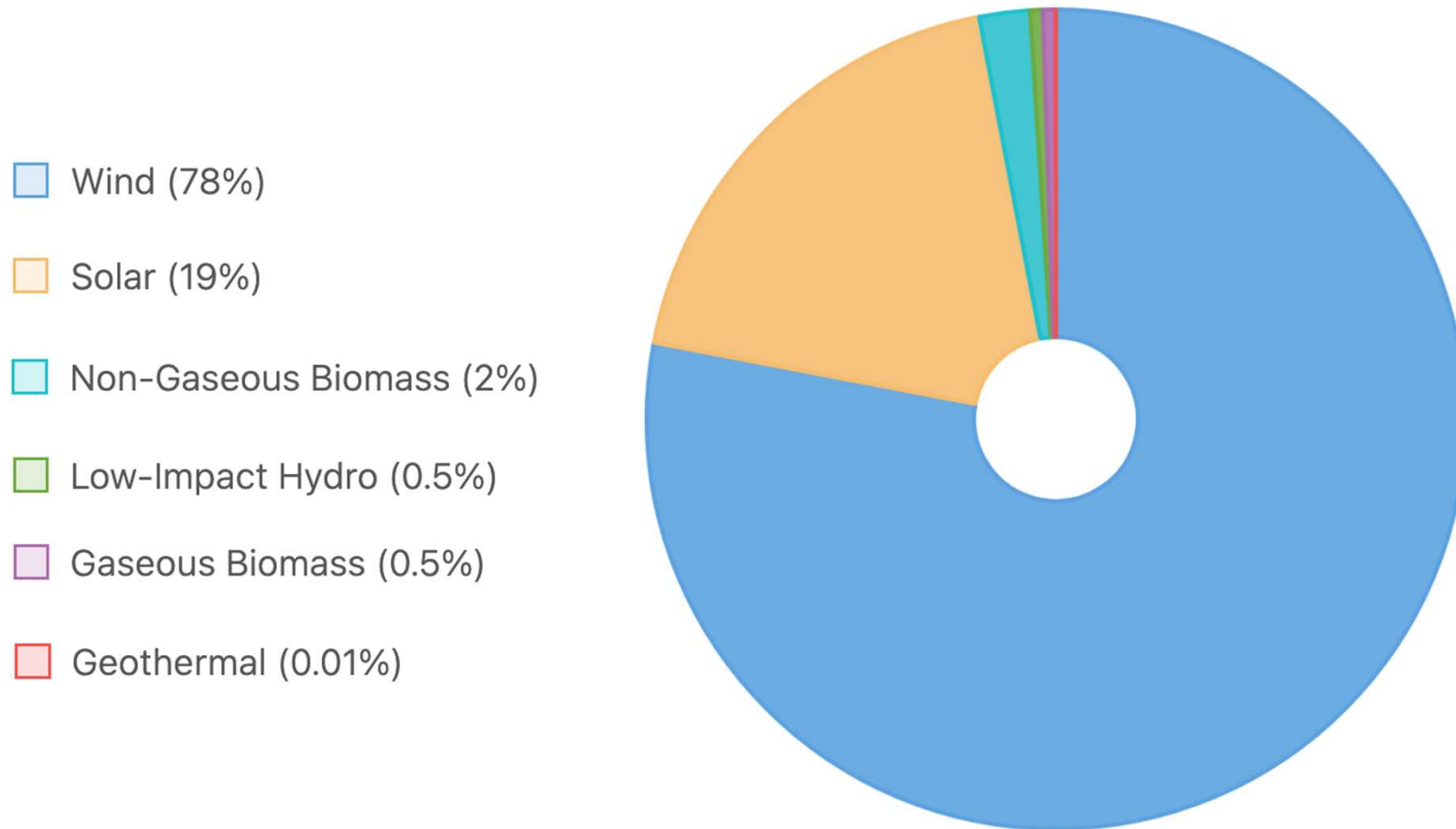
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# Customers by Product Type, 1998 – 2023

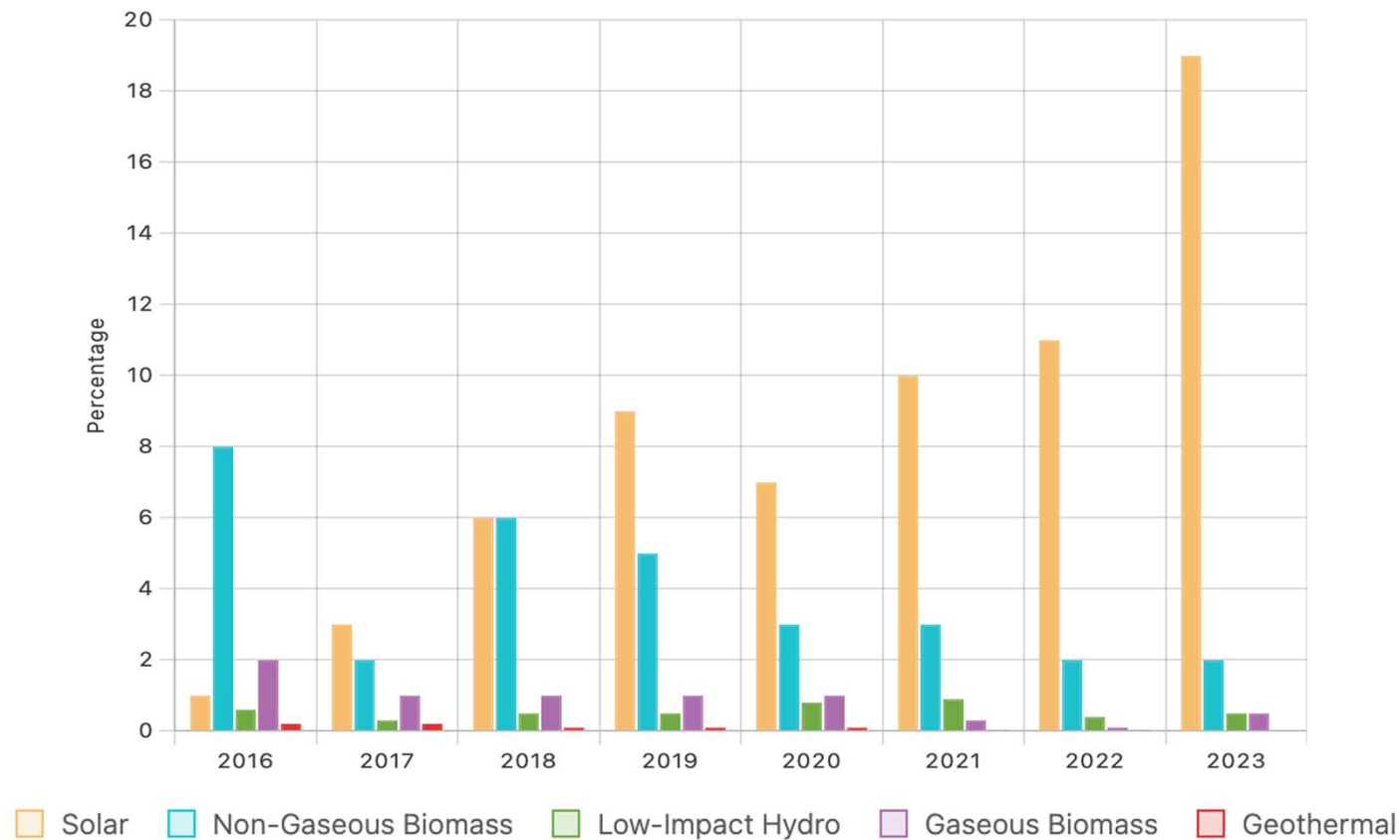


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# Contributions of Renewable Resource Types

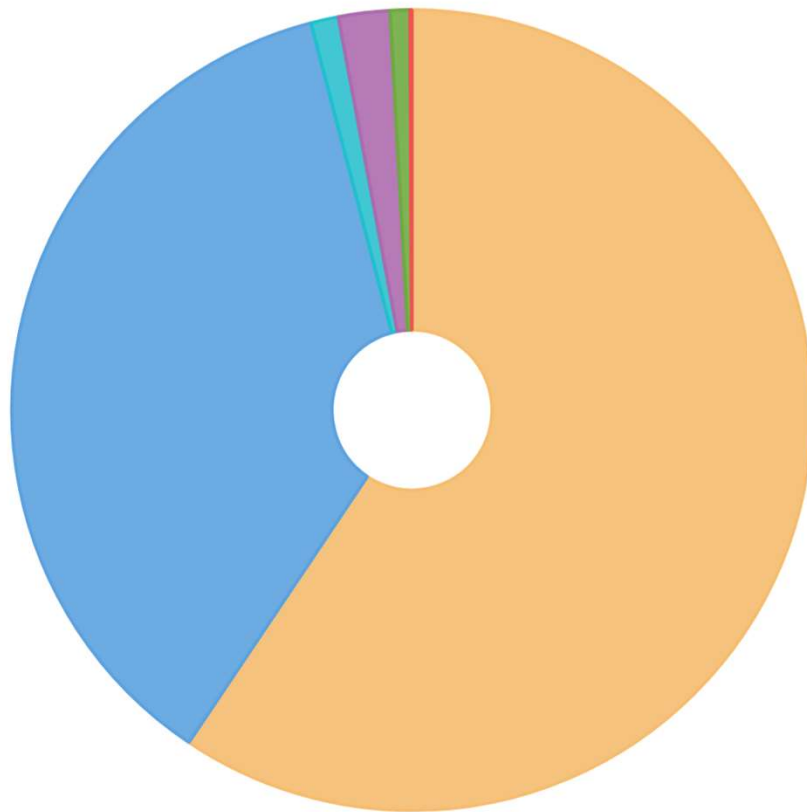


# Percentage of Non-Wind Resources in Certified Products by MWh, 2016-2023



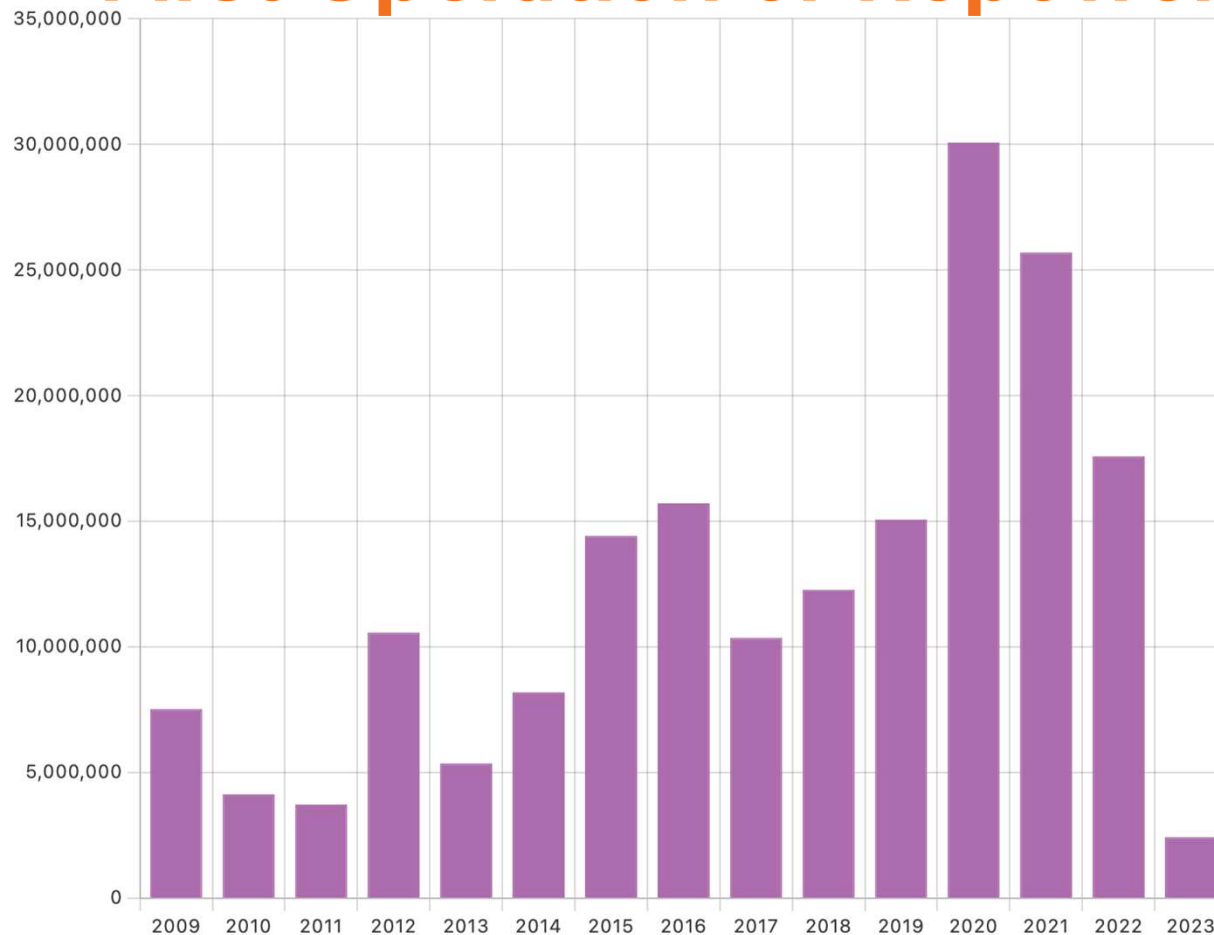
# Facilities Supplying Certified Sales by Resource Type

■ Solar (59%) 
 ■ Wind (37%) 
 ■ Non-Gaseous Biomass (1%) 
 ■ Gaseous Biomass (2%) 
 ■ Low-Impact Hydro (1%) 
 ■ Geothermal (.07%)



Resource Type	Unique Facilities	Percentage
Solar	745	59%
Wind	458	37%
Non-Gaseous Biomass	14	1%
Gaseous Biomass	26	2%
Low-Impact Hydro	10	1%
Geothermal	1	0.07%

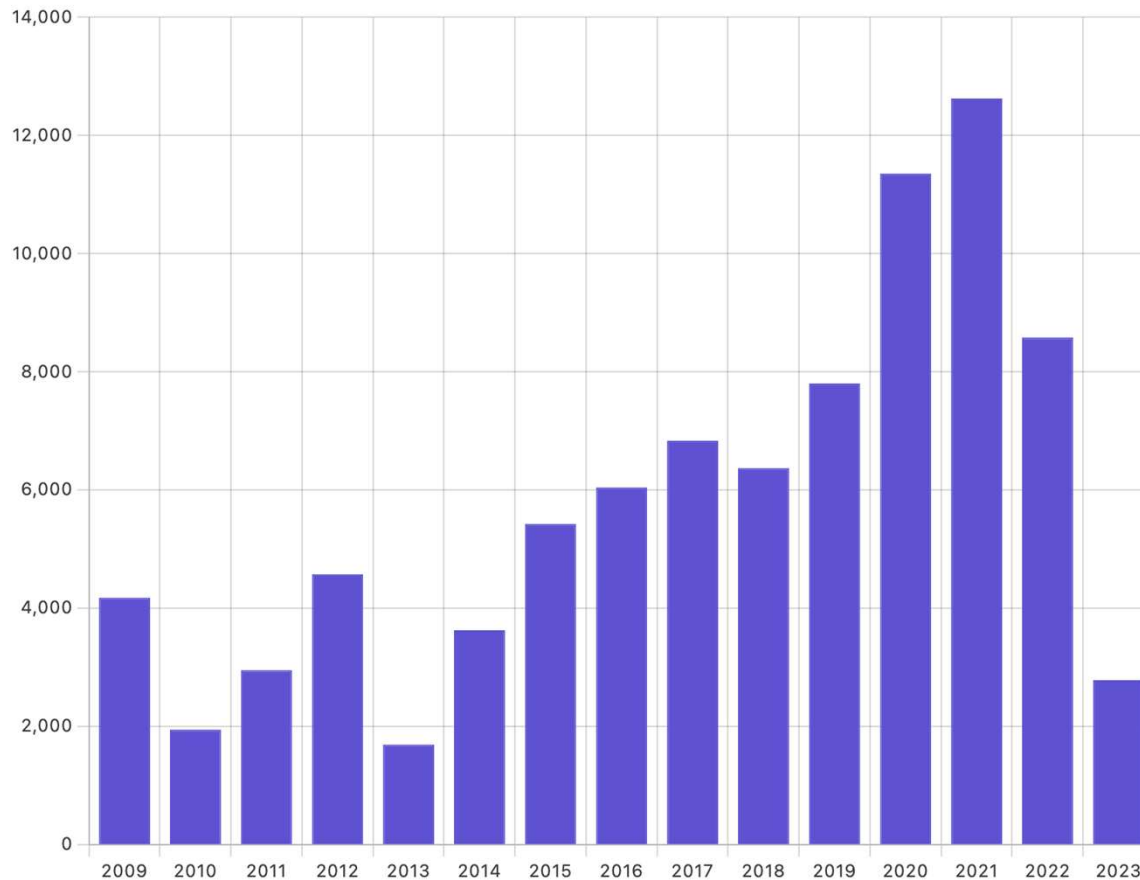
# Megawatt-Hours by Facility Date of First Operation or Repowering



- **50%** of supply from facilities aged 5 years or younger

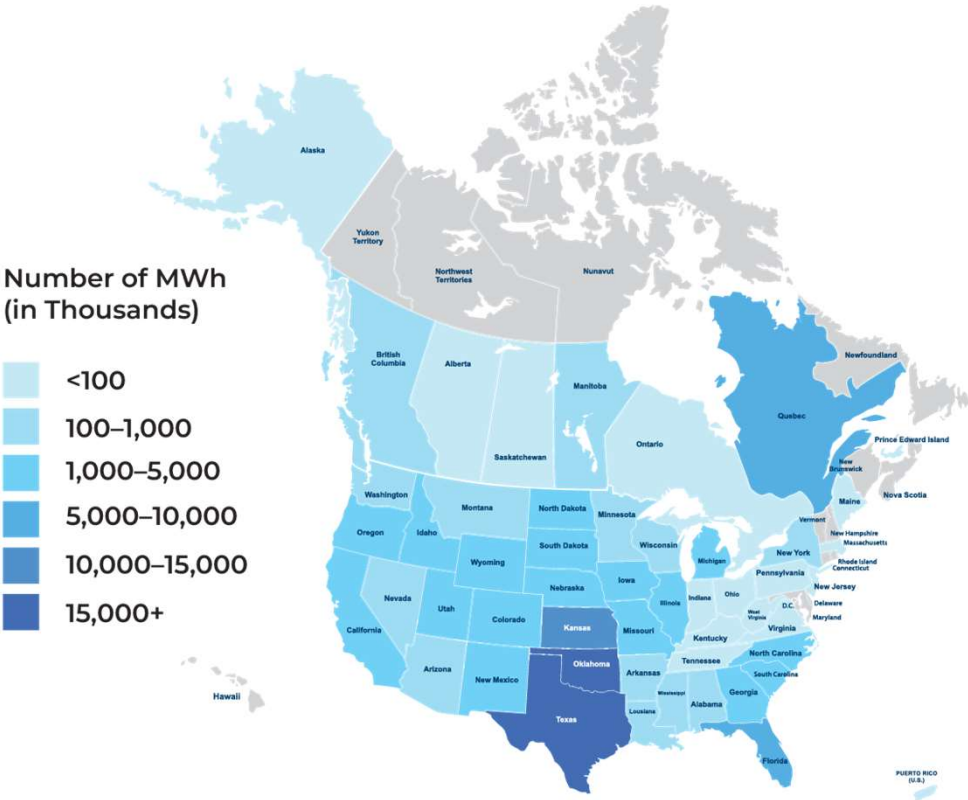
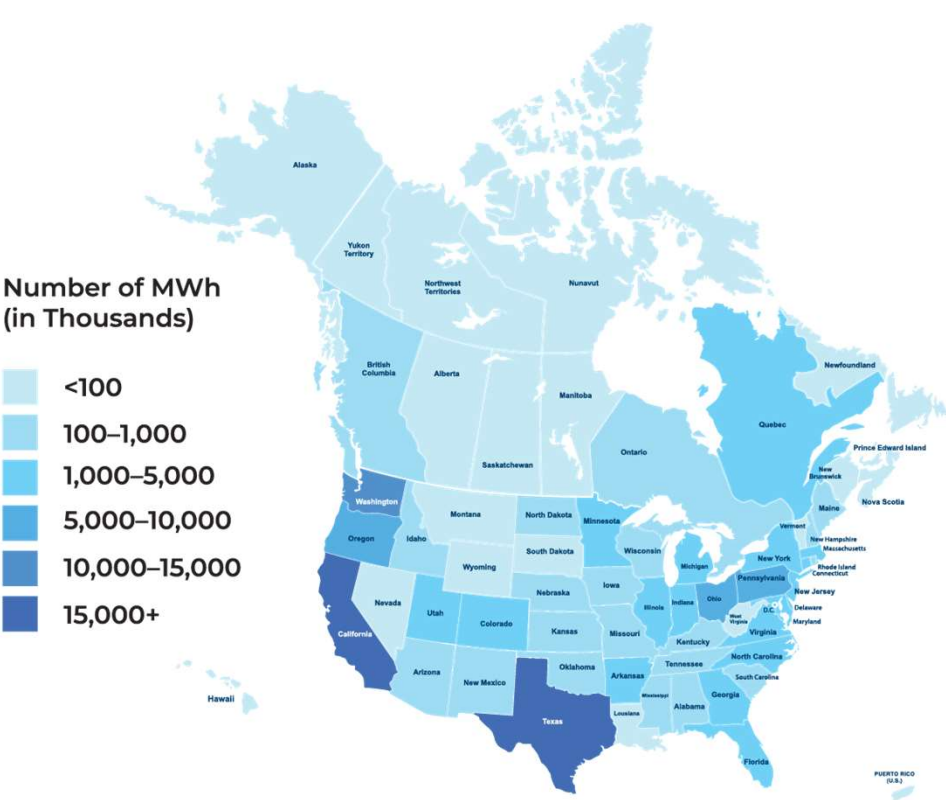


# Overall Capacity (MW) by Year of First Operation or Repowering



- **50%** of overall capacity comes from facilities 5 years old or younger

# Certified Sales and Supply



State	% of Customers
OR	29%
CA	10%
WA	9%
OH	9%
CO	6%
PA	4%
NY	4%
TX	4%
UT	4%
NJ	3%

## Percent of Total Retail Customers by State (Includes REC Sales)

The states with the highest amount of customers tend to be in states with successful utility green pricing programs, showing the stability that utility programs can offer.

# Contact.

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