



INCUBEX™

CFTC
EEMAC MEETING

NOVEMBER 7TH, 2019



About INCUBEX™

- IncubEx is an incubator for exchange traded products, services, & technology solutions.
- The company works with its partners, other industry leaders & stakeholders to design & develop financial products in global environmental markets.
- IncubEx & EEX Group (including Nodal Exchange), entered a global partnership in 2017
- The IncubEx team is comprised of former key Climate Exchange executives and industry veterans.
- The company was founded in 2016 & currently has offices in Chicago and London.

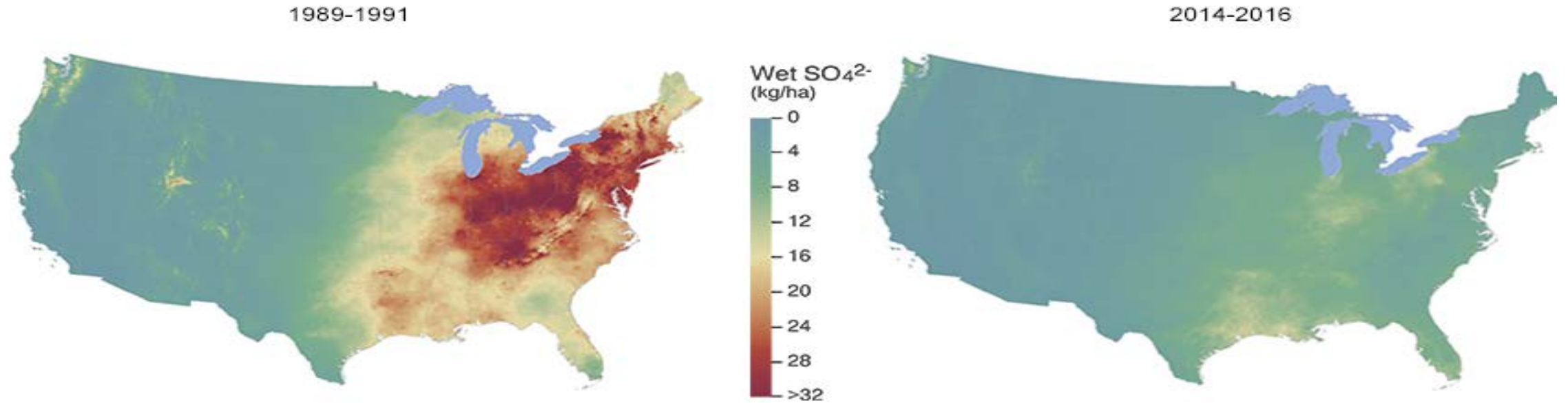
Environmental Markets Roots 1960 - 2005

1960 Dr. Ronald H Coase "The Theory of Social Cost"	1968 John Dales "Pollution, Property and Prices..."	1970s Emissions averaging and netting concepts	1983 Phase-out of lead in gasoline	1986 U. S. EPA Emissions Trading Policy Statement
1990 U.S. Clean Air Act Amendments	1994 Los Angeles RECLAIM	1995 U.S. SO ₂ Allowances: Acid Rain Program	1997 SF Bay Area Banking Program	1997 Kyoto Protocol
1998 NOx SIP Call Final Rule Published	1999 New Jersey Renewable Portfolio Standard (RPS) adopted	1999 TX adopts the Goal for Renewable Energy, creating an RPS in TX	2001 E.U. Guarantee of Origin	2002 Houston area/TCEQ
2003 Chicago Climate Exchange	2003 U.S. NOx Budget Trading Program	2004 Chicago Climate Futures Exchange launches first Enviro Futures	2005 E.U. ETS Phase I	

Environmental Markets History 2005- Present

<p>2005</p> <p>Renewable Fuels Standard created by the Energy Policy Act</p>	<p>2006</p> <p>Renewable Fuels Standard goes into effect</p>	<p>2006</p> <p>California Global Warming Solutions Act of 2006 (A.B. 32)</p>	<p>2007</p> <p>RFS expanded under the Energy Independence & Security Act</p>	<p>2007</p> <p>Western Renewable Energy Generation Information System</p>	<p>2008</p> <p>Western Climate Initiative (WCI) Design Recommendations</p>
<p>2008</p> <p>E.U. ETS Phase II</p>	<p>2008</p> <p>U.S. Clean Air Interstate Rule: Annual and Seasonal NO_x</p>	<p>2009</p> <p>Regional Greenhouse Gas Initiative (RGGI) 1st Compliance Year</p>	<p>2010</p> <p>New Jersey Solar specific provision under NJ RPS (A.B. 3520)</p>	<p>2011</p> <p>California Low Carbon Fuel Standard</p>	<p>2011</p> <p>California PUC issues decision authorizing TRECs</p>
<p>2012</p> <p>E.U. aviation CO₂</p>	<p>2012</p> <p>U.S. EPA Cross-State Air Pollution Rule</p>	<p>2012</p> <p>New Jersey Withdraws From RGGI</p>	<p>2013</p> <p>California Cap and Trade Program 1st compliance year</p>	<p>2013</p> <p>Quebec Cap and Trade Program 1st compliance year</p>	<p>2014</p> <p>California and Quebec Cap and Trade Programs Link under WCI</p>
<p>2015</p> <p>California Cap and Trade expanded to Fuels</p>	<p>2016</p> <p>International Civil Aviation Organization adopts CO₂ Offsetting</p>	<p>2017</p> <p>Ontario Cap and Trade Program 1st Compliance Year</p>	<p>2018</p> <p>Ontario Withdraws From WCI</p>	<p>2019</p> <p>New Jersey Rejoins RGGI</p>	

Three-Year Wet Sulfate Deposition



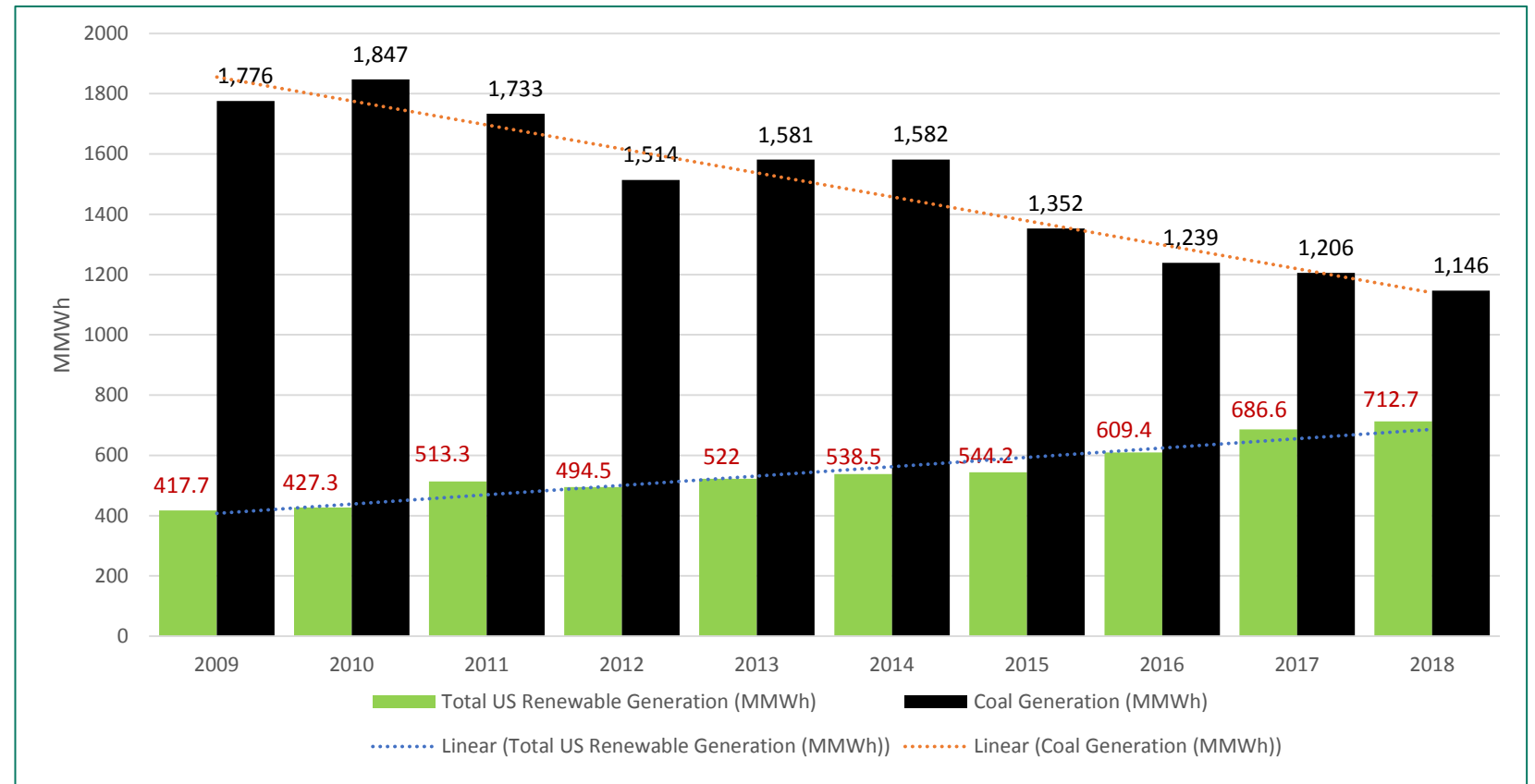
MARKET-BASED SOLUTION FOR U.S. ACID RAIN

Growth of Environmental Markets

- Market based solutions have a proven track record of success and are increasingly the policy tool of choice to solve environmental challenges.
- Roughly 3 billion tons of CO₂ emissions are currently regulated under compliance emissions trading regimes versus global emissions of over 40 billions tons
- 29 States + DC have Renewable Portfolio Standards
- Renewable Fuel Standard is federally mandated and low carbon fuel standards are expanding in North America
- Total Global Environmental Open Interest has increased over 4x from 650k lots in 2009 to 2.8M lots now
 - Source: ICE, EEX, CME & Nodal Exchange
- US Environmental Open interest has grown dramatically from 100k contracts to over 900k lots currently
 - Source: ICE, EEX, CME & Nodal Exchange

US Renewables Versus Coal Power Generation

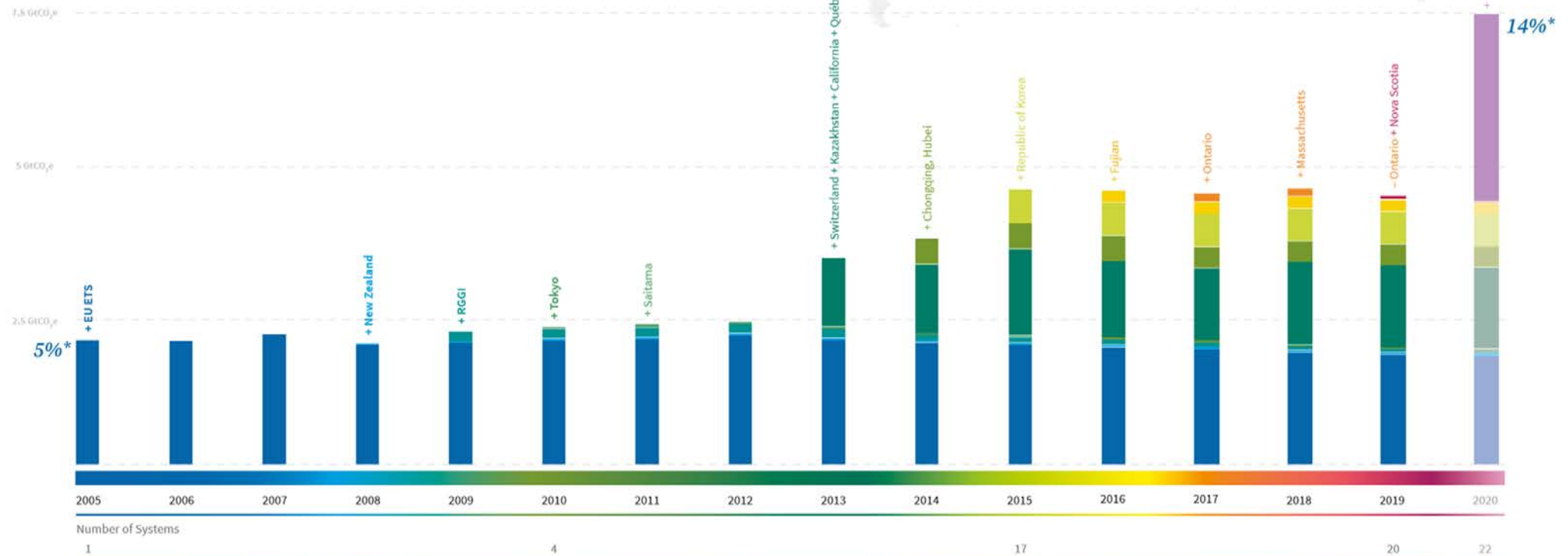
In April 2019, US monthly Electricity Generation From Renewables Topped Coal 23% V. 20%



GLOBAL EXPANSION OF EMISSIONS TRADING

GHG emissions under ETs

The graphic depicts the worldwide growth of emissions trading over time. Systems are spreading around the world and new additions have more than doubled the share of global emissions covered by emissions trading since the launch of the EU ETS in 2005. With more systems expected in the next few years, we estimate the number of global emissions under emissions trading to increase by almost 70% in 2020 compared to 2019. Changes over time are driven by the addition of new sectors and systems, as well as by the counteracting trend of declining caps in many systems.



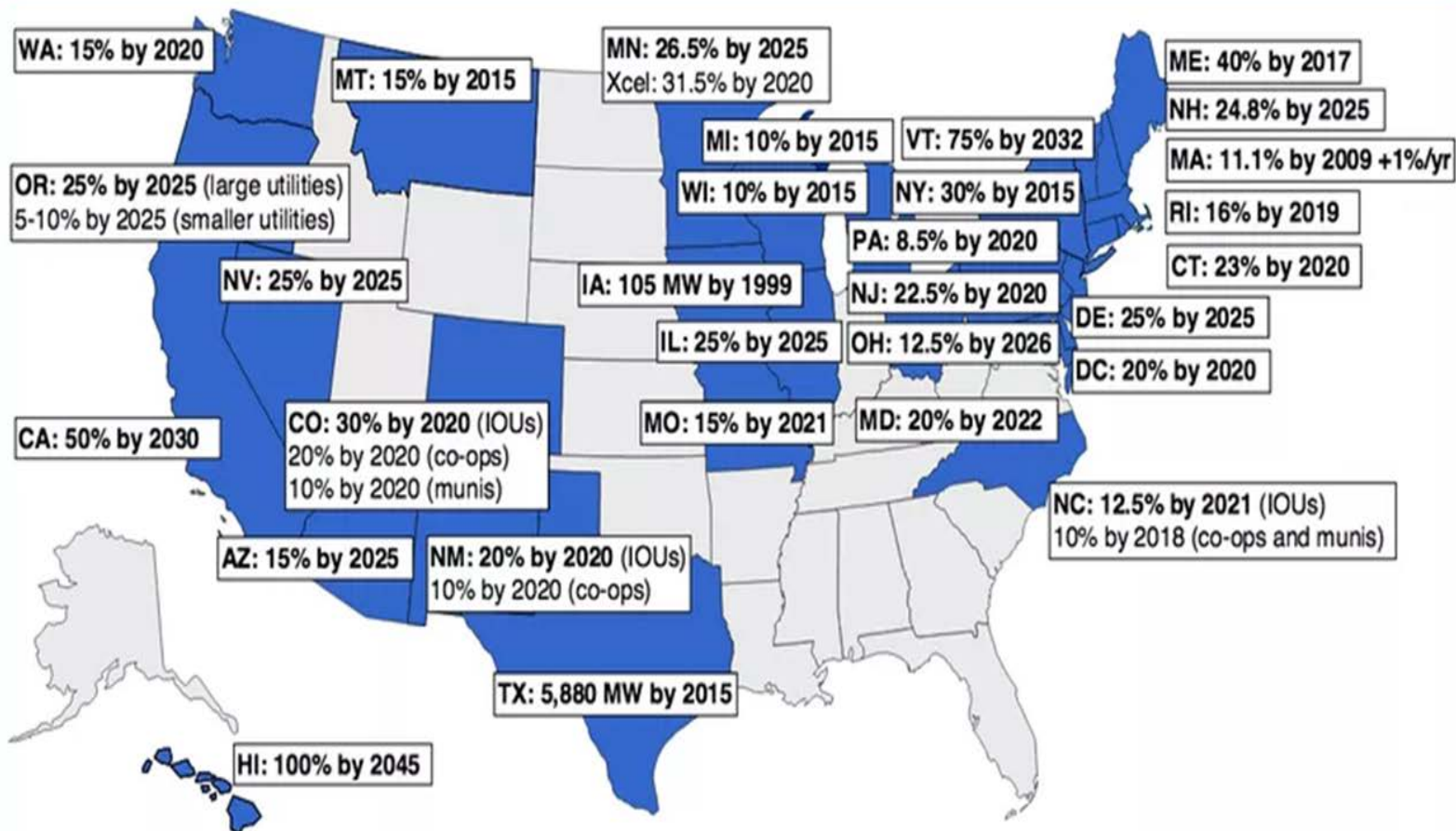
*of global GHG emissions

* Beijing, Guangdong, Shanghai, Shenzhen, Tianjin

*Virginia and New Jersey aim to join RGGI by 2020

RPS Policies Exist in 29 States and DC

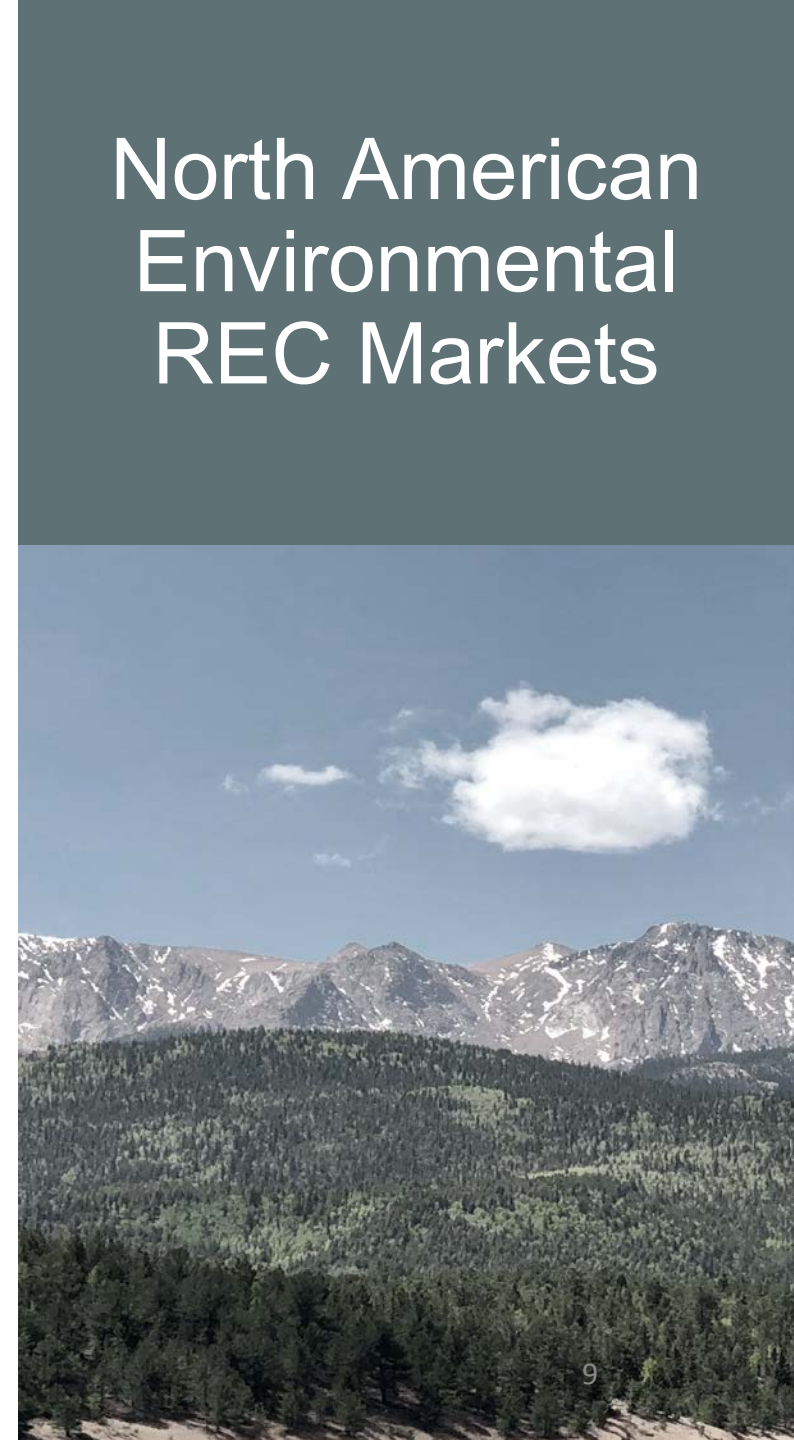
Apply to 54% of Total U.S. Retail Electricity Sales



Source: Berkeley Lab

Notes: Compliance years are designated by the calendar year in which they begin. Mandatory standards or non-binding goals also exist in US territories (American Samoa, Guam, Puerto Rico, US Virgin Islands)

North American Environmental REC Markets



Product List (1 of 2)

New products are indicated in **green**.

New vintage expansions are indicated in **bold** text.

Market	Registry	Product	Futures Vintages	Options Vintages
Emissions	CITSS	California Carbon Allowances	2017-2022	2017-2022
Emissions	EPA CAMD	Cross-State Air Pollution Rule Allowances (SO ₂ G1&2, NOx Annual, NOx Ozone G2)	2018	2018
Emissions	RGGI COATS	Regional Greenhouse Gas Initiative Allowances	2017-2021	2017-2021
RECs	ERCOT	Texas Compliance RECs	2017-2019, 2020-2022	2017-2019, 2020-2022
RECs	NEPOOL GIS	Connecticut Class I RECs	2017-2023, 2024	2017-2023, 2024
RECs	NEPOOL GIS	Connecticut Class II RECs	2018-2023	
RECs	NEPOOL GIS	Connecticut Class III RECs	2018-2023	
RECs	NEPOOL GIS	Massachusetts Class I RECs	2017-2023, 2024	2017-2023, 2024
RECs	NEPOOL GIS	Massachusetts Class II RECs (Non-WTE)	2018-2023	
RECs	NEPOOL GIS	Massachusetts Solar I RECs	2017-2023, 2024	2017-2023, 2024
RECs	NEPOOL GIS	Massachusetts Solar II RECs	2017-2023, 2024	2017-2023, 2024
RECs	NEPOOL GIS	NEPOOL Dual Qualified RECs	2017-2023, 2024	2017-2023, 2024
RECs	NEPOOL GIS	New Hampshire Class I RECs	2018-2023	
RECs	NEPOOL GIS	New Hampshire Class III RECs	2018-2023	
RECs	NEPOOL GIS	Rhode Island New RECs	2018-2023	
RECs	NEPOOL GIS	Maine Class I RECs	2018-2022	

Environmental Products on Nodal



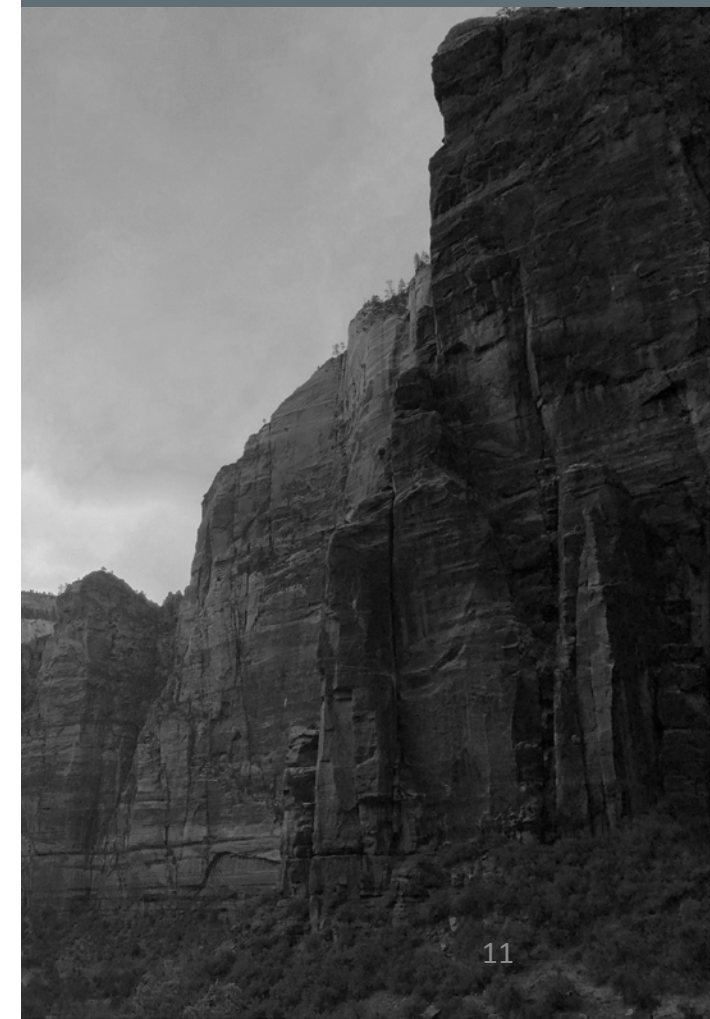
Product List (2 of 2)

New products are indicated in **green**.

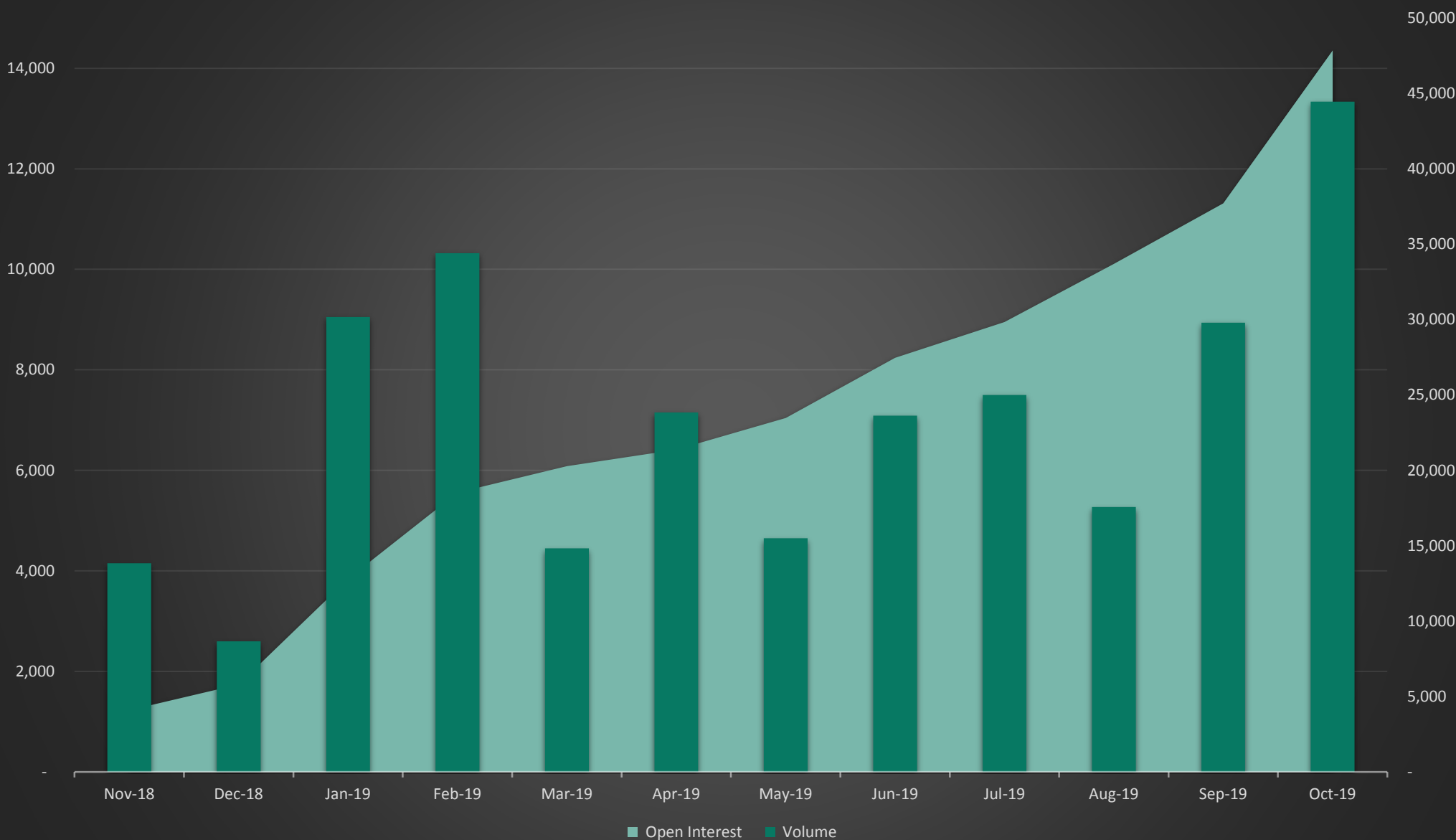
New vintage expansions are indicated in **bold** text.

Market	Registry	Product	Futures Vintages	Options Vintages
RECs	PJM GATS	Maryland Tier I RECs (Vintage Specific & Bankable)	VS: 2017-2023, 2024 ; B: 2019-2023, 2024	VS: 2017-2023, 2024 ; B: 2019-2023, 2024
RECs	PJM GATS	Maryland Solar RECs	2017-2023, 2024	2017-2023, 2024
RECs	PJM GATS	New Jersey Class I RECs (Vintage Specific & Bankable)	VS: 2017-2023, 2024 ; B: 2019-2023, 2024	VS: 2017-2023, 2024 ; B: 2019-2023, 2024
RECs	PJM GATS	New Jersey Solar RECs	2017-2024	2017-2024
RECs	PJM GATS	Pennsylvania Tier I Alternative Energy Certificates (Vintage Specific & Bankable)	VS: 2017-2023, 2024 ; B: 2019-2023, 2024	VS: 2017-2023, 2024 ; B: 2019-2023, 2024
RECs	PJM GATS	Pennsylvania Solar Alternative Energy Certificates	2017-2023, 2024	2017-2023, 2024
RECs	PJM GATS	PJM Tri-Qualified RECs	2017-2024	2017-2024
RECs	PJM GATS	District of Columbia Tier I RECs	2019-2023	
RECs	PJM GATS	District of Columbia Solar RECs	2019-2023	
RECs	PJM GATS	Ohio Non-Solar RECs	2019-2023	
RECs	PJM GATS	Ohio Solar RECs	2019-2023	

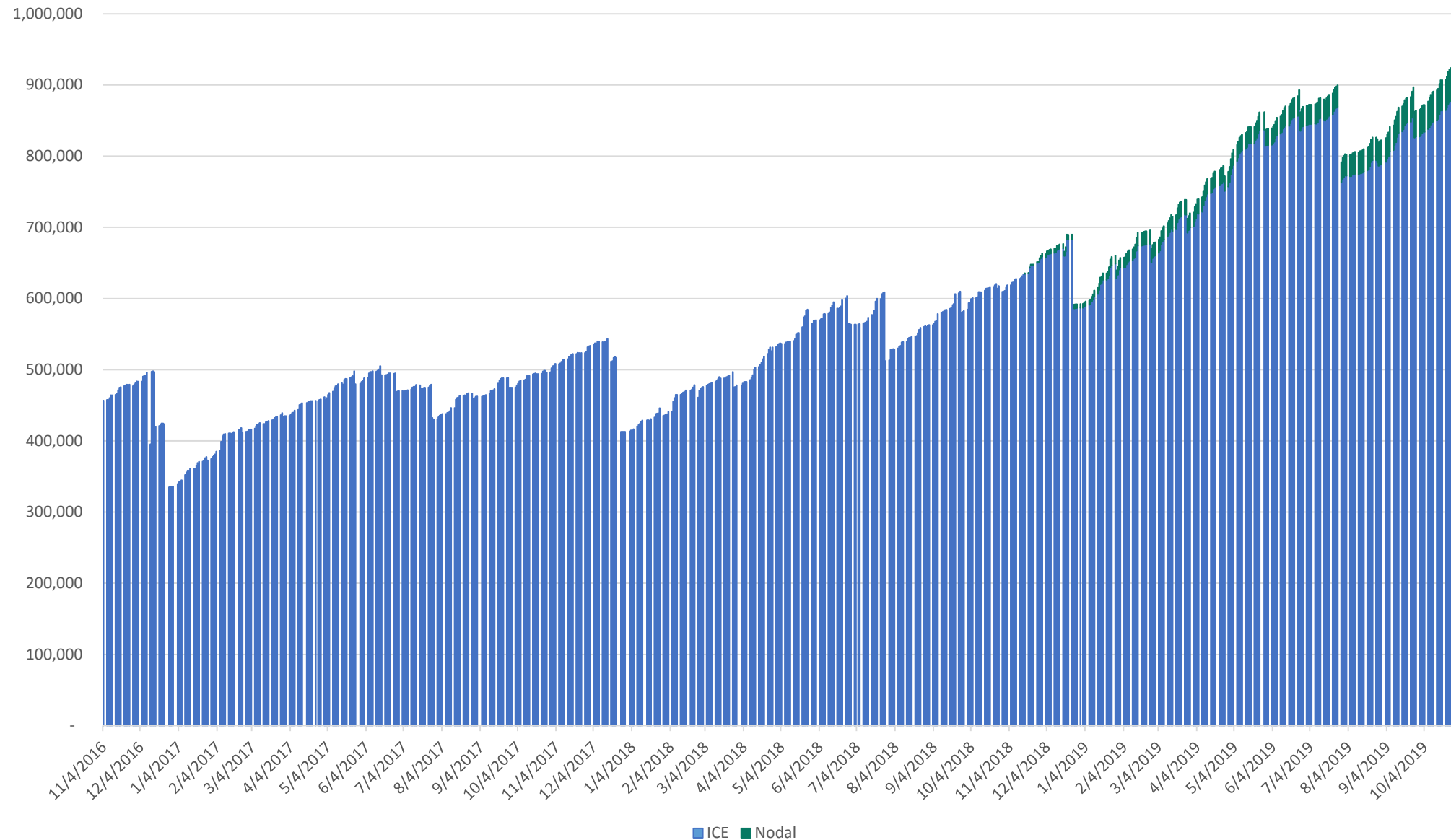
Environmental Products on Nodal



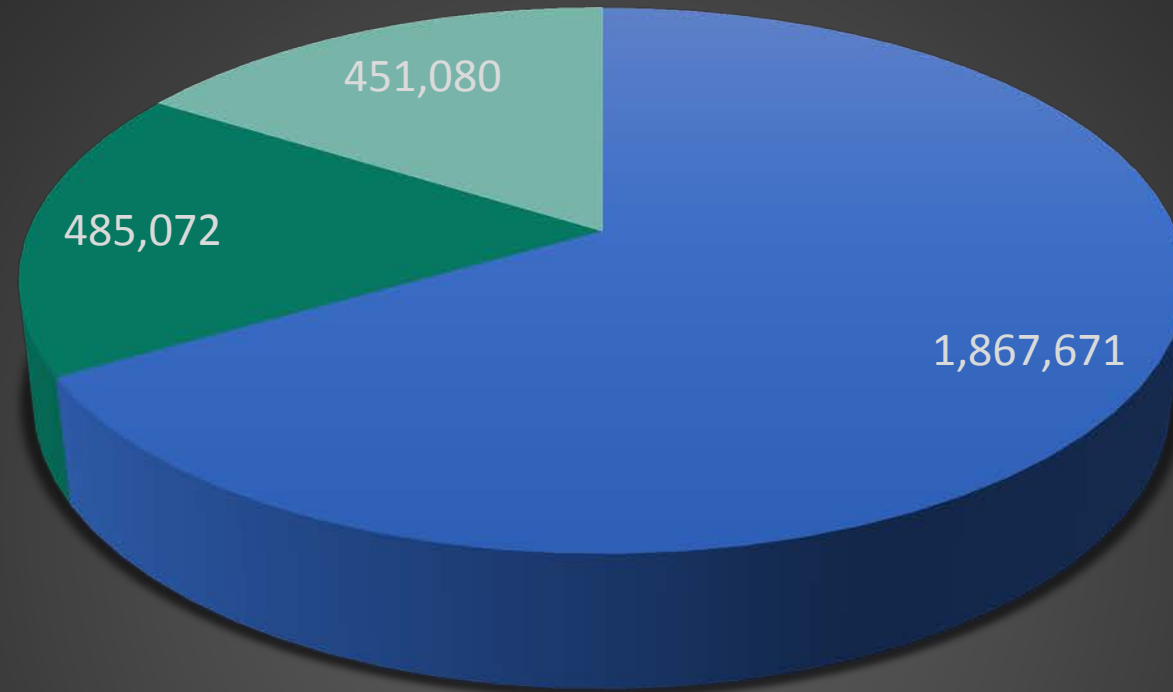
Nodal Exchange Environmental Volume & Open Interest



Total U.S. Environmental Open Interest



Environmental Open Interest in U.S. & E.U.



Total Open Interest: 2.8M contracts

■ European Carbon ■ North American Carbon ■ North American Renewable Energy Certificates

CFTC COT Report – 10/22/19

U.S. Environmental Products			
Product	# Firms with Reportable level of Open Interest	Total Reportable Open Interest	Difference from Last Week
CCA V18	42	34,905	125
CCA V19	65	113,368	3,963
CCA V20	46	50,878	2,242
CCA V21	28	30,981	2,278
CCA V22	22	9,536	0
NJ Solar RECs	31	146,093	-300
RGGI V19	32	47,520	-114
PJM Tri-Class 1 RECs	27	104,333	5,673
MA Class 1 RECs	24	20,107	14
CT Class 1 RECs	20	11,556	11,556
MD Solar RECs	23	43,631	135
TOTAL		612,908	25,572

Thank You

Contact Information:

INCUBEX, Inc.

410 North Michigan Avenue, Suite 910

Chicago, IL 60611

Daniel Scarbrough

President & COO

daniel.scarbrough@theincubex.com

(210) 834-2001

