

The Climate Action Reserve in the California Offset Market

November 18, 2014



CLIMATE
ACTION
RESERVE

Joel Levin
Vice President,
Business Development



Climate Action Reserve Background

- Non-profit created by state legislation in 2001
 - Promote the reduction of GHG emissions through market-based policies
- Serve compliance and voluntary carbon markets
- Balance business, government, and environmental interests
- Consulting to governments on climate policy development and offset program design



Current Role in California

- Protocols the Reserve developed formed the basis for those adopted by California Air Resources Board:
 - Also were approved for generating early action compliance credits
- Accredited by ARB as an official Offset Project Registry (OPR)
 - Depth of expertise on protocols
 - Strong customer service
 - Strong reputation among buyers
 - About 90% of all ARB offsets to date have for Reserve-issue

Our Early Action Mine Methane Projects



CLIMATE
ACTION
RESERVE

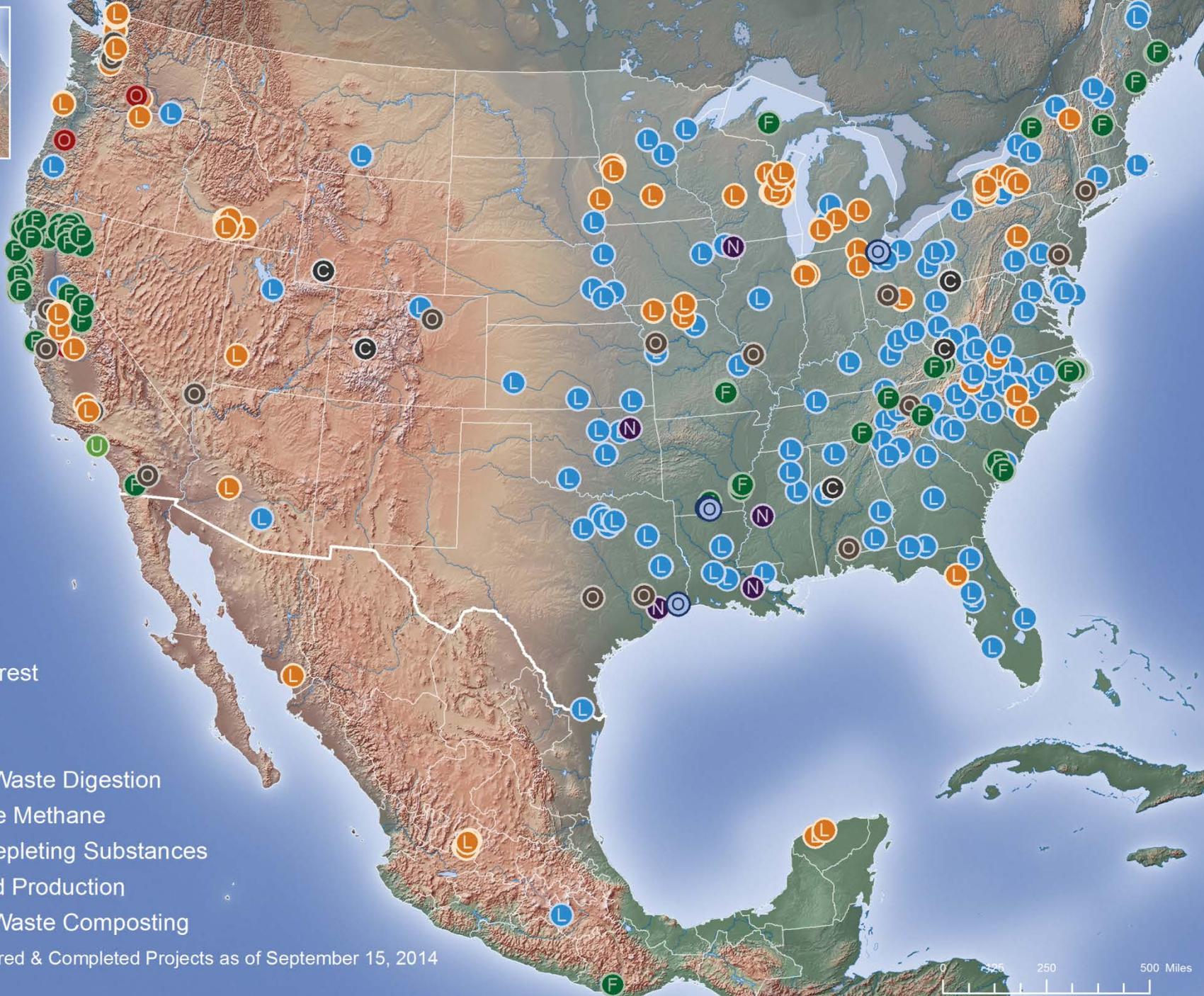
- Elk Creek Coal Mine (Colorado)—Drainage
 - Developer: Vessels Coal Gas
- Green River Trona Mine (Wyoming)—Drainage
 - Developer: Solvay Chemicals
- Pinnacle Coal Mine (West Virginia)—Drainage
 - Developer: Pinnacle Mining Company
- JWR Coal Mine (Alabama)—VAM
 - Developer: Biothermica
- McElroy Coal Mine (West Virginia)—VAM
 - Developer: Verdeo McElroy LLC



CLIMATE
ACTION
RESERVE

- Forest
- Urban Forest
- Livestock
- Landfill
- Organic Waste Digestion
- Coal Mine Methane
- Ozone Depleting Substances
- Nitric Acid Production
- Organic Waste Composting

Listed, Registered & Completed Projects as of September 15, 2014



Six Closing Thoughts on the California Offset Market

November 18, 2014



CLIMATE
ACTION
RESERVE

Joel Levin
Vice President,
Business Development

1. Market demand will change sharply in 2015



CLIMATE
ACTION
RESERVE

- Transportation fuel and natural gas suppliers come under the cap for the first time
- These are mostly big companies with big obligations —so cost savings on offsets matters
 - Fuel suppliers get no free allowances
 - Gas supplies get some free allowances, but will have more flexibility than power utilities in buying offsets
- Big companies want to buy from big projects
- First compliance deadline is November 1, 2016
 - Key date for the market

2. What happens after 2020 matters now



CLIMATE
ACTION
RESERVE

- Market is now expected to be long through 2020—so post-2020 hedging will soon be a major source of demand
- ARB has already indicated that it wants to continue the cap-and-trade system beyond 2020
- ARB expected to announce 2030 target next year
 - It will have a big impact on offset demand
 - Expectation is that year-over-year cuts will be much deeper than currently

3. Demand for offsets will exceed supply through 2020



CLIMATE
ACTION
RESERVE

California Carbon Budget: 2013-2020



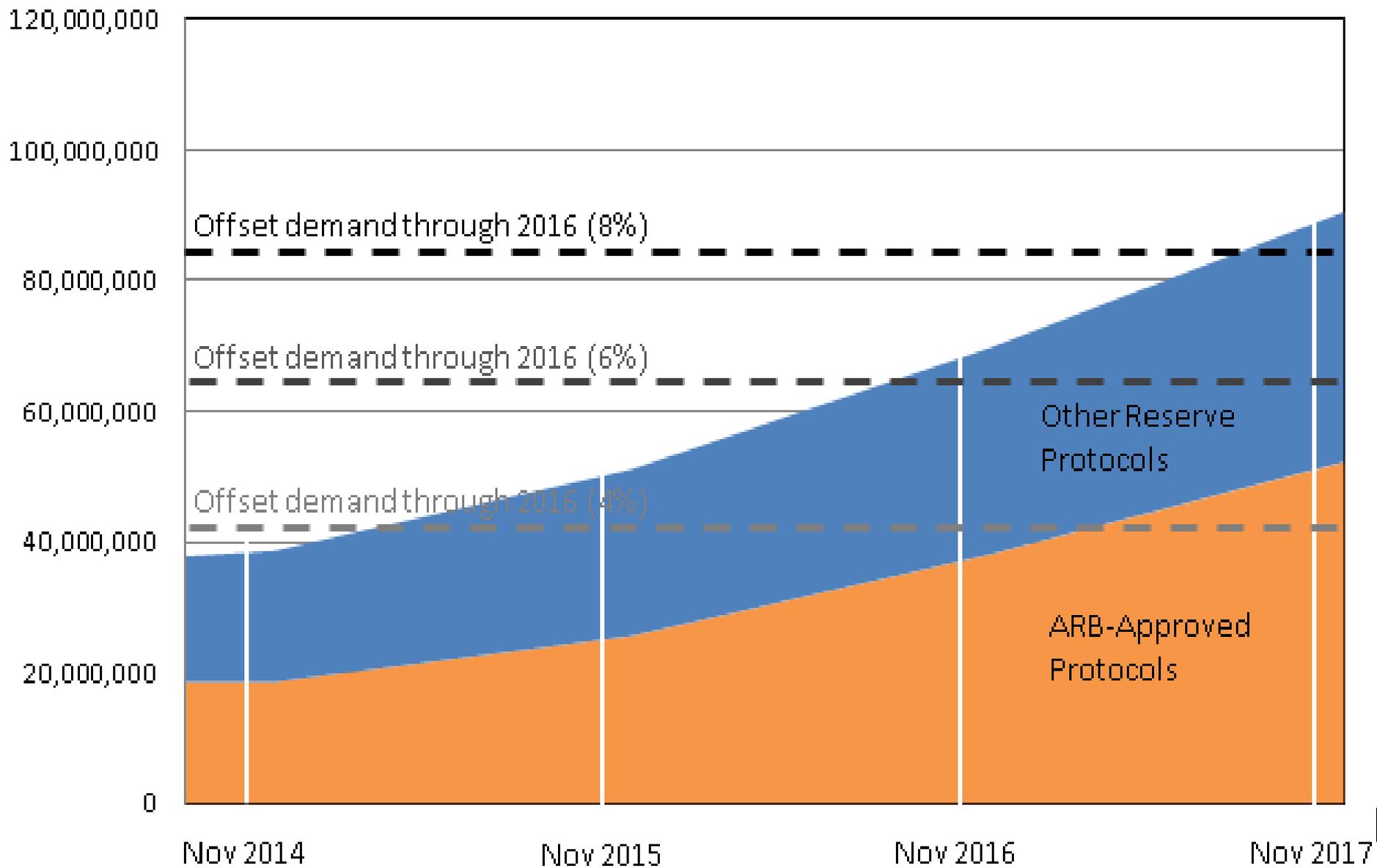
CLIMATE
ACTION
RESERVE

Compliance Period	Year	Allowance Budget (mt CO ₂ e)*	Max Offset Demand (8%)
First (narrow scope)	2013	162,800,000	26,800,000
	2014	159,700,000	
Second (broad scope)	2015	394,500,000	91,784,000
	2016	382,400,000	
	2017	370,400,000	
Third (broad Scope)	2018	358,300,000	83,104,000
	2019	346,300,000	
	2020	334,200,000	

* Source: California Air Resources Board (CARB)

Projected Cumulative CRTs & ROC Issuance

(as of September 30, 2014)



4. Offsets will trade in a narrow range through 2020



CLIMATE
ACTION
RESERVE

- All forecasts suggest that allowance market will be long through 2020
 - Price is expected to remain near the auction price floor through 2020
 - This could change if economy takes off or hedging behavior creates scarcity
- Offsets trade at a discount to the price of allowances
- Auction price floor (and therefore, the price of offsets) increases 7-8% each year

5. Buyers will seek to manage invalidation risk



CLIMATE
ACTION
RESERVE

- Result of Clean Harbors—increased spread for “golden” offsets
- Business opportunity for companies willing to take on this risk
- Conservative companies will pay someone else to take on this risk
- For a big enough spread, some companies will happily take on the risk themselves

6. So is there a business opportunity here?



CLIMATE
ACTION
RESERVE

- The good news: demand for offsets will almost certainly exceed supply
- The bad news: price is effectively capped—but it will increase by 7-8% every year, and is unlikely to drop
- So, if you can make money at forecasted prices, the demand should be there.....



CLIMATE
ACTION
RESERVE

Thank You