



CLIMATE
ACTION
RESERVE

What do I do?: **CARBON MARKETS**

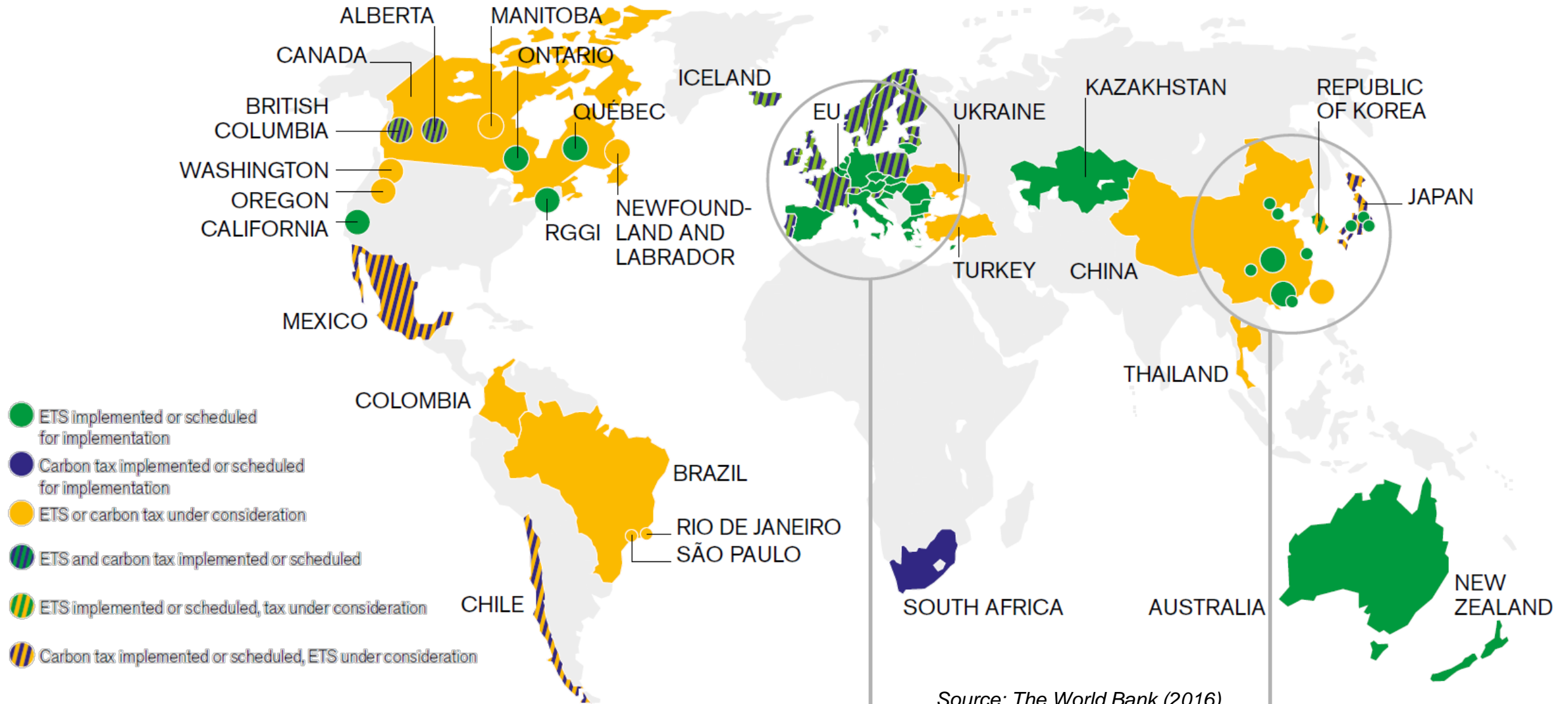
WHCEC “TED Talks”

Monday, 2/11/2019

What's a carbon market?

- A mechanism which allows the exchange of money for GHG rights (either emissions or emission reductions)
- Do they exist? YES!
- A **carbon tax** is a pricing mechanism, but is **not a market**
- Voluntary markets are based on value-driven decisions, or PR/marketing
 - Mostly focused on carbon offsets
- Compliance markets are based on regulation
 - Usually focused on allowances (permits to pollute)
 - Often will include offsets, but with more limitations/requirements
- Renewable energy markets are related, but different

Carbon markets around the world



Source: The World Bank (2016)

Carbon offsets



Verified emissions reductions in unregulated sectors with barriers to adoption

- Sellers need incentives to reduce GHGs
- Buyers want/need to offset their own emissions
- 1 CRT = 1 tCO₂e



Project
development

Public
listing

Third-party
verification

Registry
review

Issuance,
trading, &
retirement

Overarching GHG accounting principles

- GHG accounting is conservative, comprehensive, and scientifically credible

Real



- GHG reductions would not have occurred in the absence of the carbon market

Additional



- GHG reductions or removals persist for at least 100 years

Permanent



- Ex-post third-party verification prior to credit issuance

Verifiable



- No other parties may reasonably claim ownership of GHG reductions

**No Double
Counting**

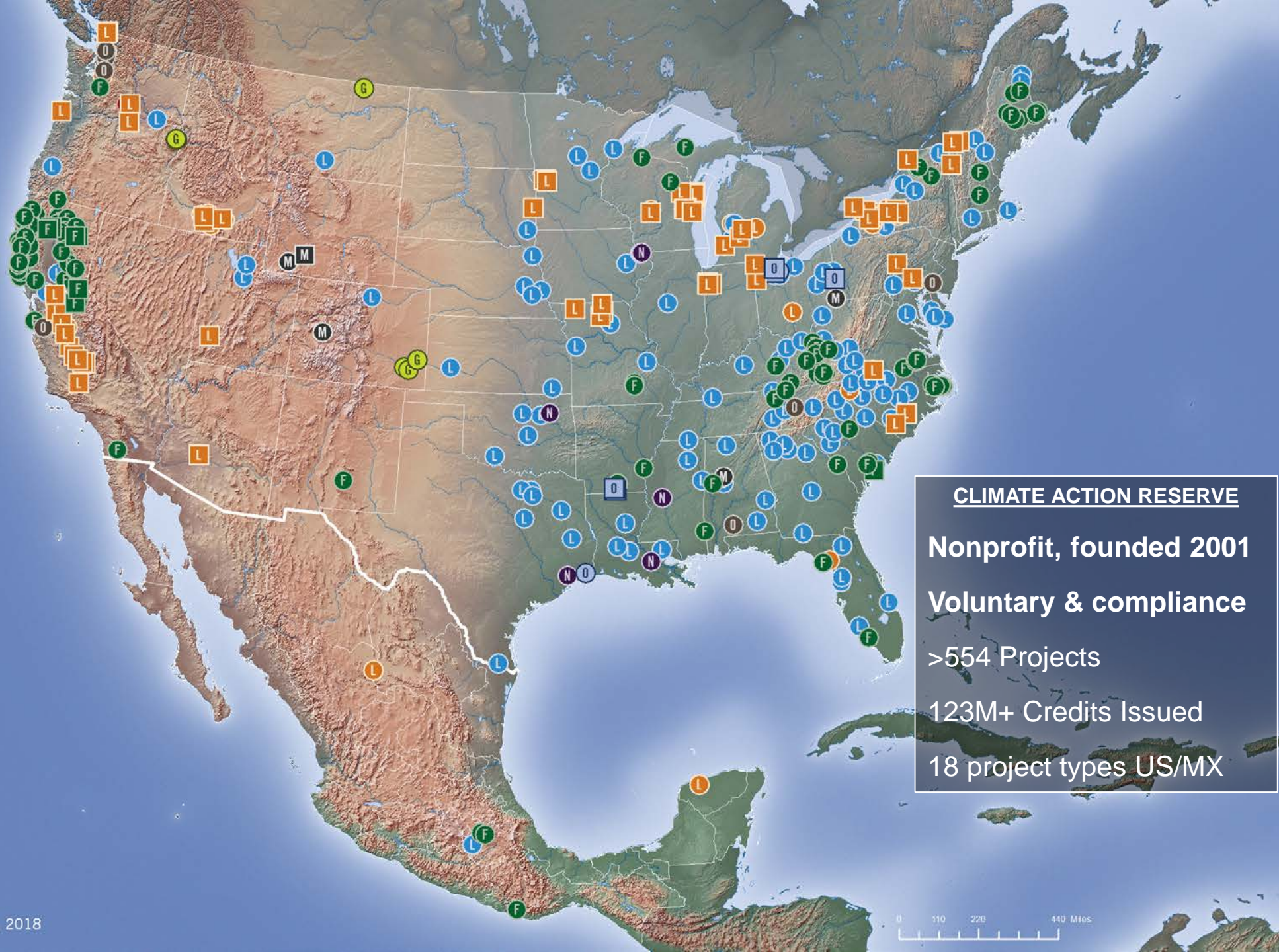




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- F Forest
- G Grassland
- L Landfill
- L Livestock
- M Mine Methane
- N Nitric Acid Production
- O Organic Waste Composting
- O Organic Waste Digestion
- O Ozone Depleting Substances
- F Forest - ARB
- L Livestock - ARB
- M Mine Methane - ARB
- O Ozone Depleting Substances - ARB

Listed, Registered & Completed Projects as of March 1, 2018



CLIMATE ACTION RESERVE

Nonprofit, founded 2001

Voluntary & compliance

>554 Projects

123M+ Credits Issued

18 project types US/MX



What do I do?

- **Registries provide structure, rigor, and transparency to build confidence in the carbon market**
- Technical and policy development for offset protocols/methodologies
 - Research
 - Data analysis
 - Stakeholder management
 - Project management
- Assistance for project developers and verifiers (auditors)
- Review project documentation and assist with registry management
- Participation in external advisory groups
- Development of a new program for impact assessment of investments (e.g., green bonds)

Example: livestock



- Dairy and swine manure stored in open lagoons produces methane (GWP 25)
- Installation of lagoon covers or anaerobic digesters allows for methane capture
- Methane destruction via flares, engines, etc.
- Credits based on avoided methane emissions, minus actual project emissions
- Project typically only sited on very large farms due to high capital costs
- Mostly located in Great Lakes region and West Coast, with scattered projects in ID, UT, NC
- **145 projects listed and registered (some duplicates)**
- **6,024,956 credits issued**



Example: avoided grassland conversion



- Permanent conservation of grassland threatened by conversion to cropland
- Requires new conservation easement
- Credits based on modeled loss of soil carbon over time and avoided cultivation emissions (e.g. fertilizer), minus actual project emissions (e.g. grazing)
- Projects are typically thousands of acres
- Projects are monitored for 100 years after credit issuance
- Attractive for land trusts
- **10 projects listed and registered**
- **51,822 credits issued**

Example: ozone depleting substances



- Collection and destruction of used refrigerants and foam blowing agents
- CFCs and HCFCs
- Chemicals have been phased out by the Montreal Protocol, but are still being recycled, and have very high GWP
- Gases are transported to approved facilities and then permanently destroyed
- Credit based on average leak rates, minus expected leaks of substitute gases
- **112 projects listed and registered**
- **17,158,821 credits issued**