



ผลการทบทวนกลไกราคาและแรงจูงใจสำหรับกลไกการลดก๊าซเรือน กระจกภาคสมัครใจในต่างประเทศ

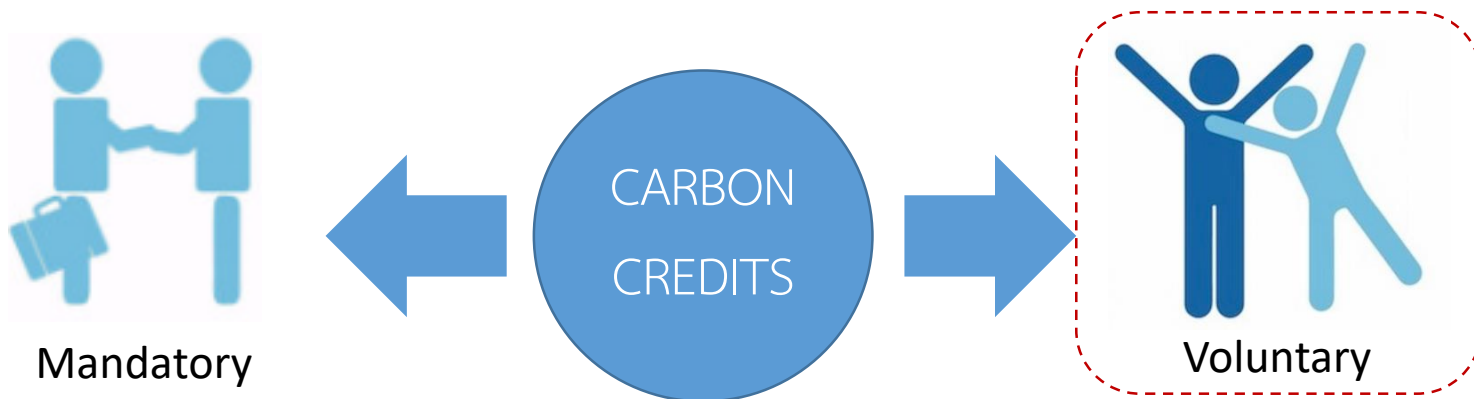


เอกสารนี้จัดเตรียมขึ้นสำหรับกำหนดการประชุมหารือกับผู้มีส่วนได้เสีย (Stakeholder consultation) ครั้งที่ 1 เรื่องแนวทางการกำหนดราคาคาร์บอนเครดิตเพื่อมุ่งสู่เมืองคาร์บอนต่ำ วันพุธที่ 25 กรกฎาคม 2561

- **Overview**
- **Verified Carbon Standard (VCS)**
- **China Certified Emission Reduction (CCER)**
- **J-Credit**
- **Climate Action Reserve (CAR)**
- **Carbon Farming Initiative (CFI)**
- **Forestry in New Zealand ETS**



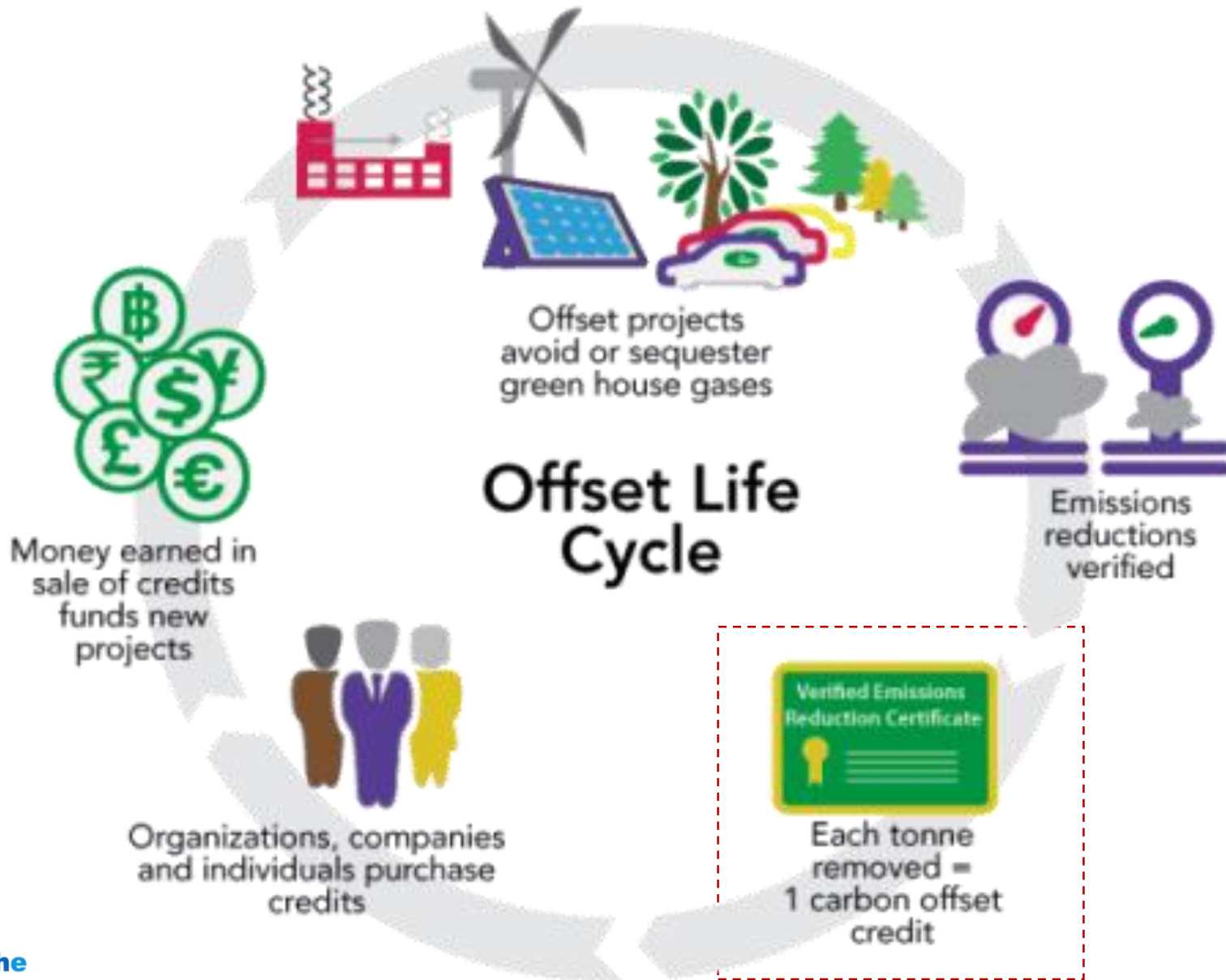
- ❖ A carbon credit is a generic term for any tradable certificate or permit representing the right to emit one tone of carbon dioxide or the equivalent mass of another greenhouse gas.
- ❖ Many companies sell carbon credits to commercial and individual customers who are interested in lowering their carbon footprint on a voluntary basis.





Over
500
projects

source: southpole carbon management





International Standards



National Standards





Verified Carbon Standard



Climate, Community & Biodiversity Standards



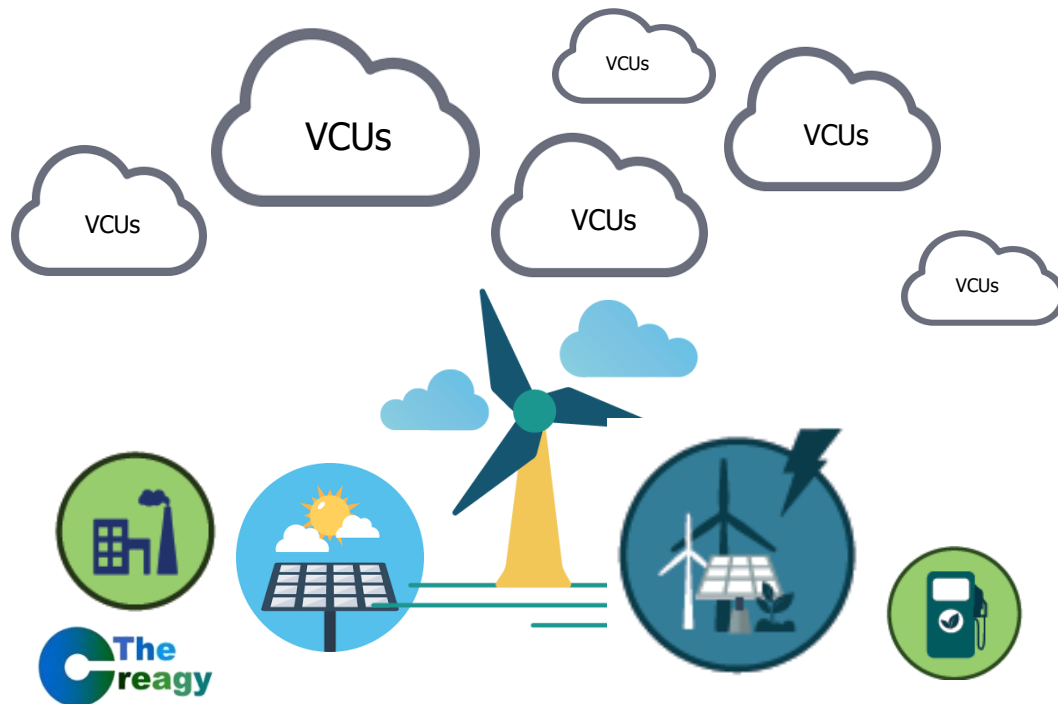
California Offset Project Registry



Sustainable Development Verified Impact Standard

The VCS Program

The VCS Program is the world's most widely used voluntary GHG program. More than 1300 certified VCS projects have collectively reduced or removed more than 200 million tonnes of carbon and other GHG emissions from the atmosphere.



What projects are covered by the standard system



How can projects be certified by VCS

1

Choose a Methodology

2

Validate Project Description

3

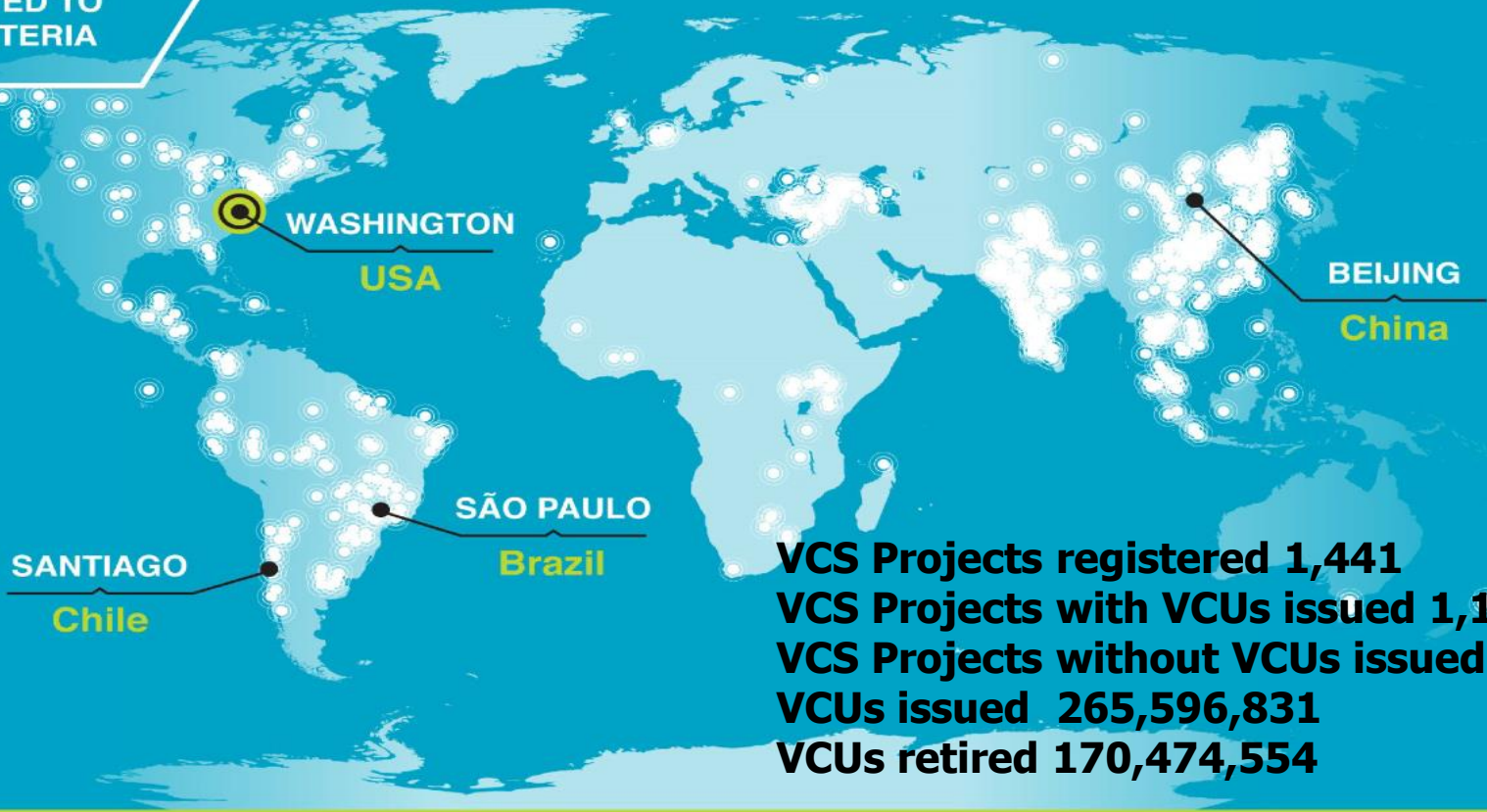
Verify Emission Reductions

4

**Register Project & Issue
VCUs**

MORE THAN
1.000 PROJECTS
VALIDATED TO
VCS CRITERIA

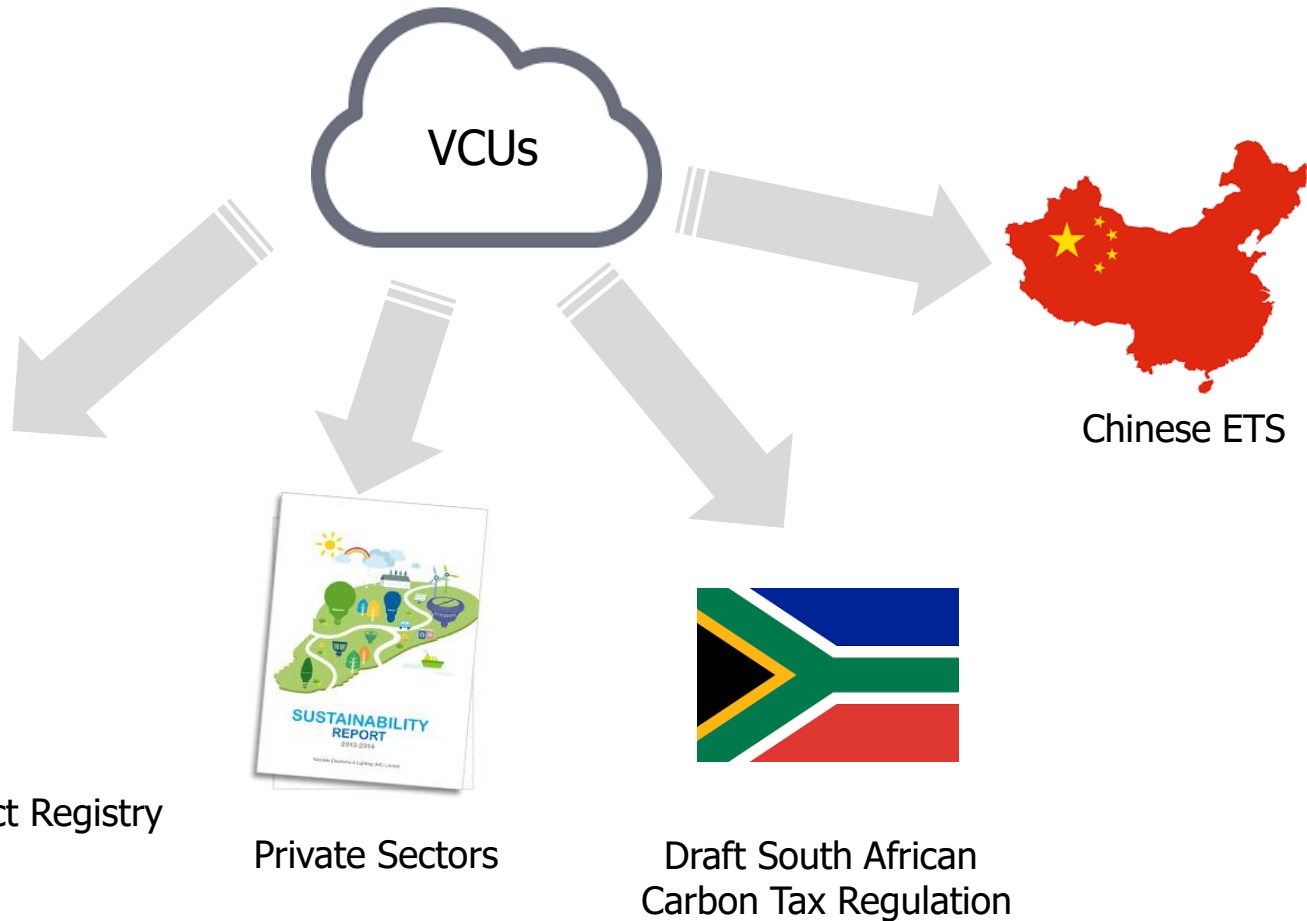
VCS | VERIFIED
CARBON
STANDARD



VCS Projects registered 1,441
VCS Projects with VCUs issued 1,115
VCS Projects without VCUs issued 326
VCUs issued 265,596,831
VCUs retired 170,474,554

source: www.vcsprojectdatabase.org (23/07/2018)

VCUs Offsetting Program



source: www.vcsprojectdatabase.org (23/07/2018)

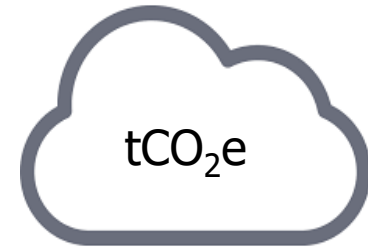
Chinese Certified Emissions Reduction (CCER)



What is CCER?

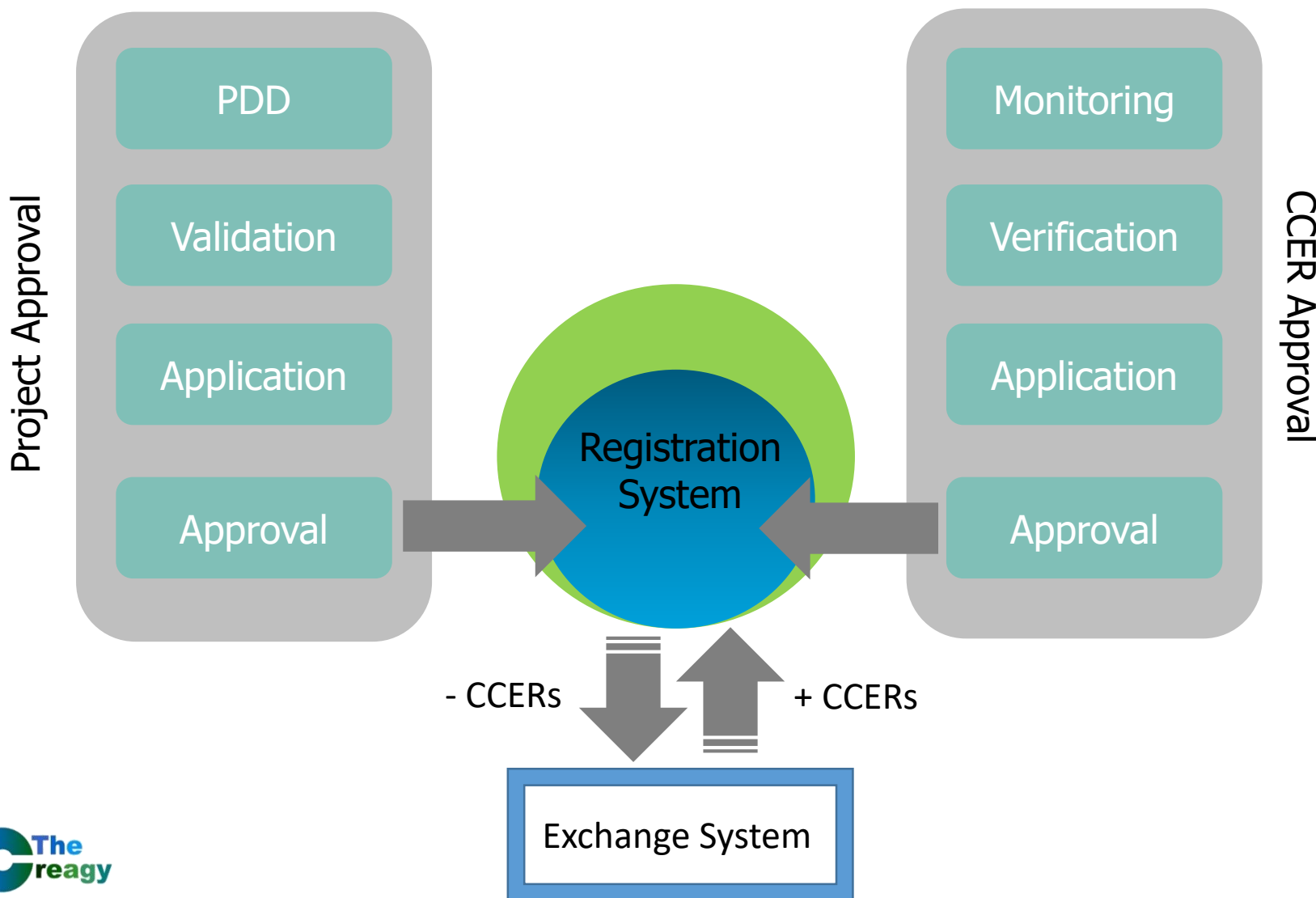
- ❖ Contemporary Management Methodology on GHG Voluntary Emission Reduction Trade, issued by National Development and Reform Commission (NDRC) in June 2012
- ❖ NDRC is China DNA in charge of CCER project approval and registration
- ❖ Chinese Certified Emission Reductions, Unit : tCO₂e

Why develop CCER project?



- ❖ Providing an alternative for the emission reduction projects failed to get into the CDM Market.
- ❖ Overcoming financing barrier and increasing the project financial attractiveness.
- ❖ Enhancing the corporate image of environment and social responsibility to improve brand competitiveness.
- ❖ Introducing cleaner and more efficient technologies to promote technical renovation and industrial upgrading.
- ❖ Getting profits by trading CCERs in China Carbon Trading Market.

CCER project cycle



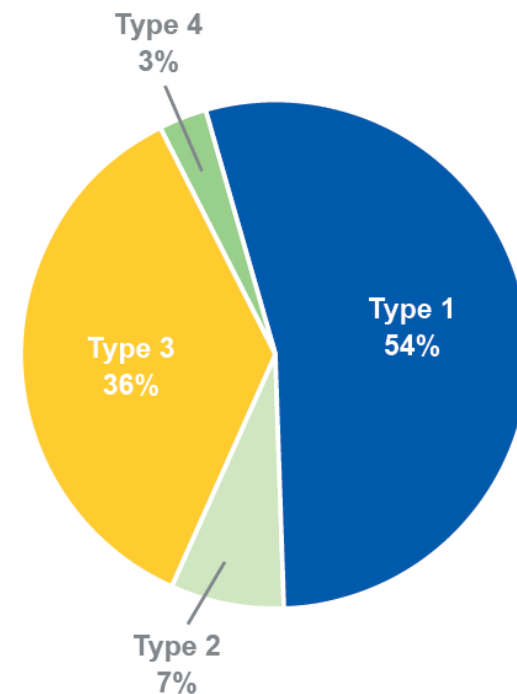
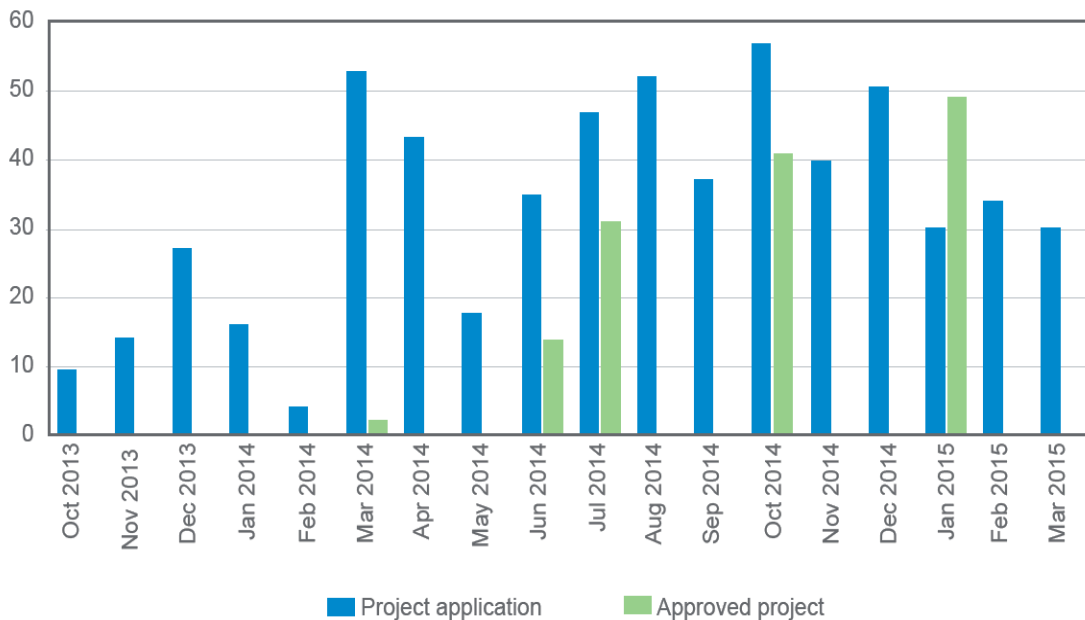
CCER Application Condition

- ❖ Enterprises established within the territory of the P.R. China
- ❖ Construction date : as from 16/02/2005
- ❖ Project type:
 - 1 Projects that adopt the methodologies recorded in NDRC
 - 2 Project approved by the NDRC but not registered with the UNFCCC as CDM projects
 - 3 Project approved by the NDRC with emission reduction produced prior to registration with the UNFCCC as CDM projects
 - 4 Registered with the UNFCCC as CDM projects with unissued emission reduction.

CCER Pilot Market



CCER projects that are applying to register/have been approved

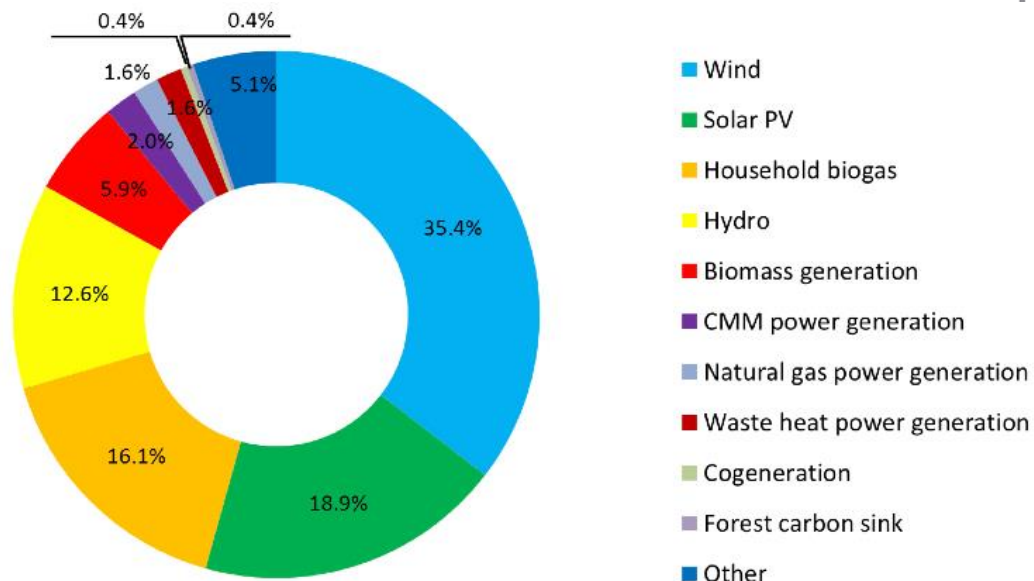


source: ICIS Tschach Solutions

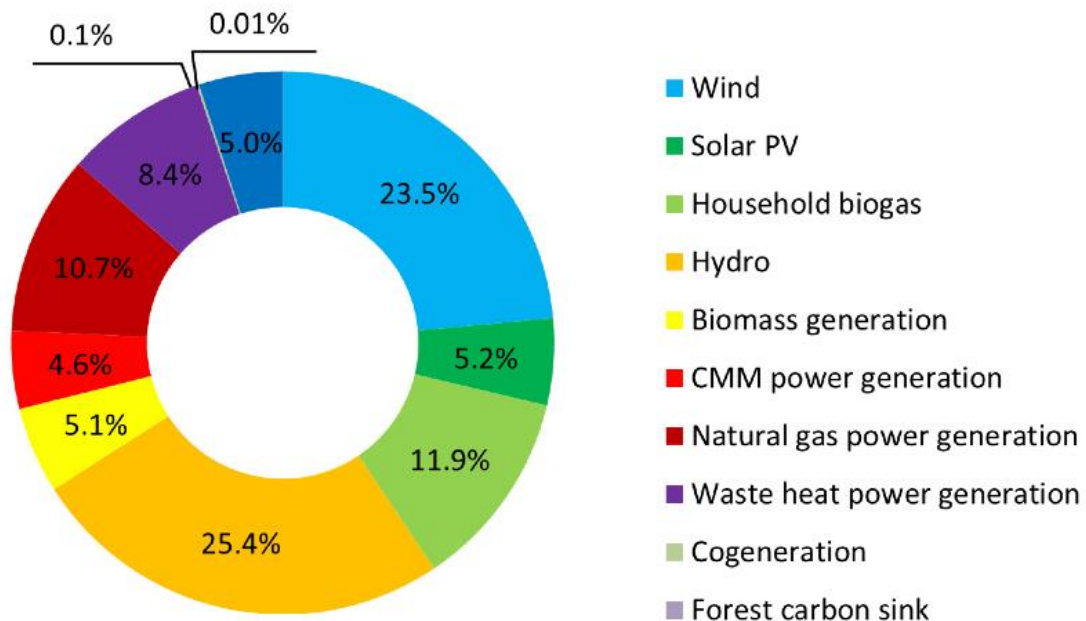
Chinese Certified Emissions Reduction (CCER)



CCER Projects by Type
(% of issued projects)



CCER Projects by Type
(% of credits issued)



CCER Demand in ETS

Pilot-2015	CCER Offset Ratio	CCER Demand (Mt)
Guangdong	10%	39.20
Hubei	10%	19.00
Shanghai	5%	7.00
Beijing	5%	3.10
Tianjin	10%	11.60
Chongqing	8%	8.70
Shenzhen	10%	4.50
Total		93.10

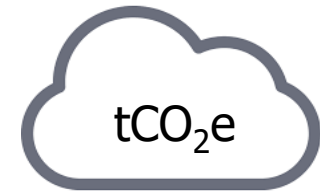
J-Credit Scheme



What is J-Credit?

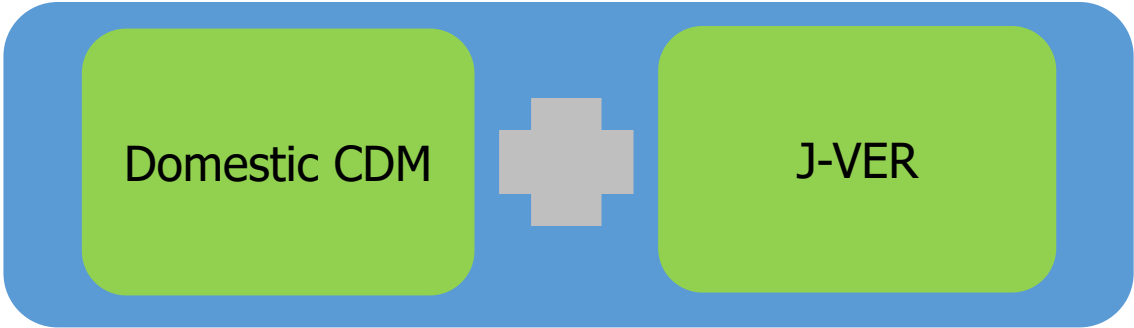
- ❖ The J-Credit Scheme is a new scheme under the Government of Japan certified the amount of greenhouse gas emissions.
- ❖ Integrating into a new scheme in April 2013, Domestic Clean Development Mechanism (CDM) and the Japan Verified Emission Reduction System J-VER)

Why develop CCER project?

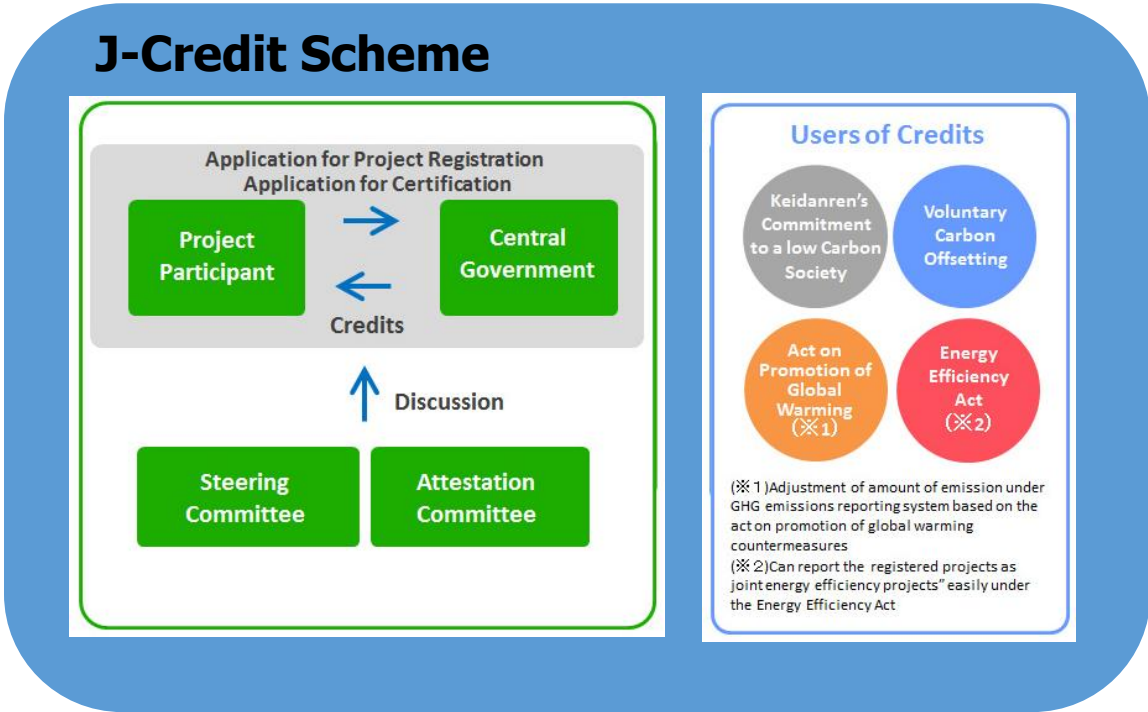


- ❖ Achieving the targets of the Action Plan for Achieving a Low-Carbon Society (Keidanren's Commitment to a Low-Carbon Society) or for carbon offsets.
- ❖ Promoting GHG emission reductions and removals in Japan after 2013 continuously and actively
- ❖ J-Credit is created in renewable energy project can be reported in CDP questionnaire.
- ❖ Enhancing CSR activities and voluntary carbon offsetting.

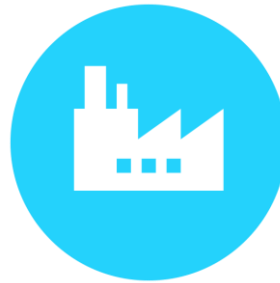
Until end of March 2013



After April 2013



What projects are covered by the standard system





- 1) Facility Managers can add new participants continuously after registration of the projects.
- 2) Reduction of Examination fees (Usually, each projects should be examined individually.)
- 3) Reduction of workload of project participants

Process of J-Credit Scheme

1

Development of PDD

1

Choose / Development of Methodology

2

Project Planning

2

Registration of Project

3

Validation

4

Discussion - Registration

3

Monitoring - Certification

5

Monitoring - Calculation

6

Verification

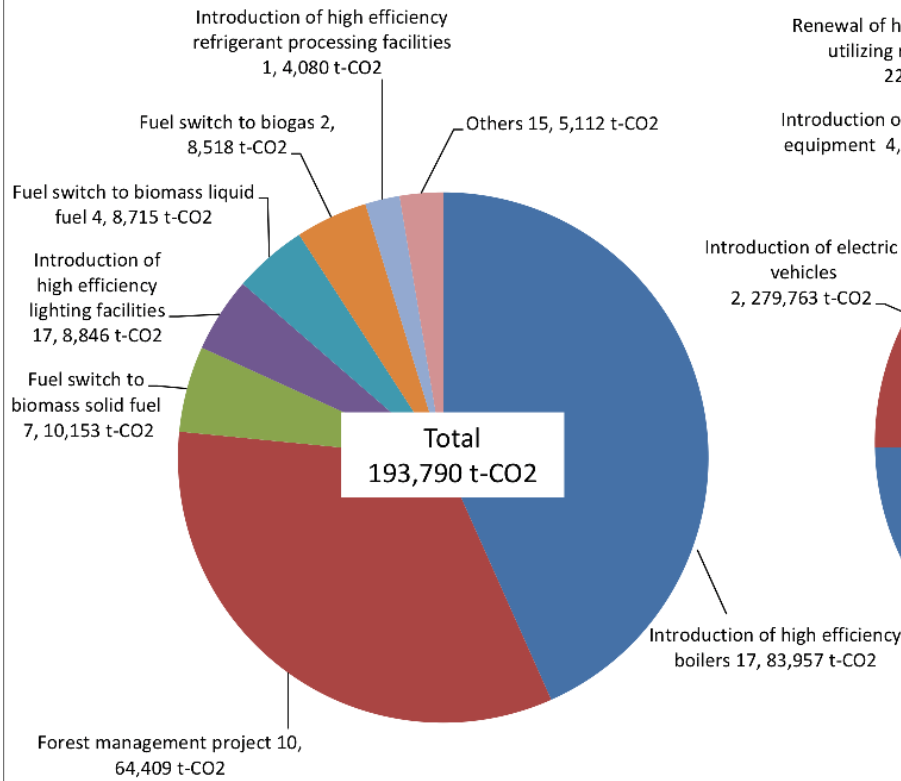
7

Discussion - Certification

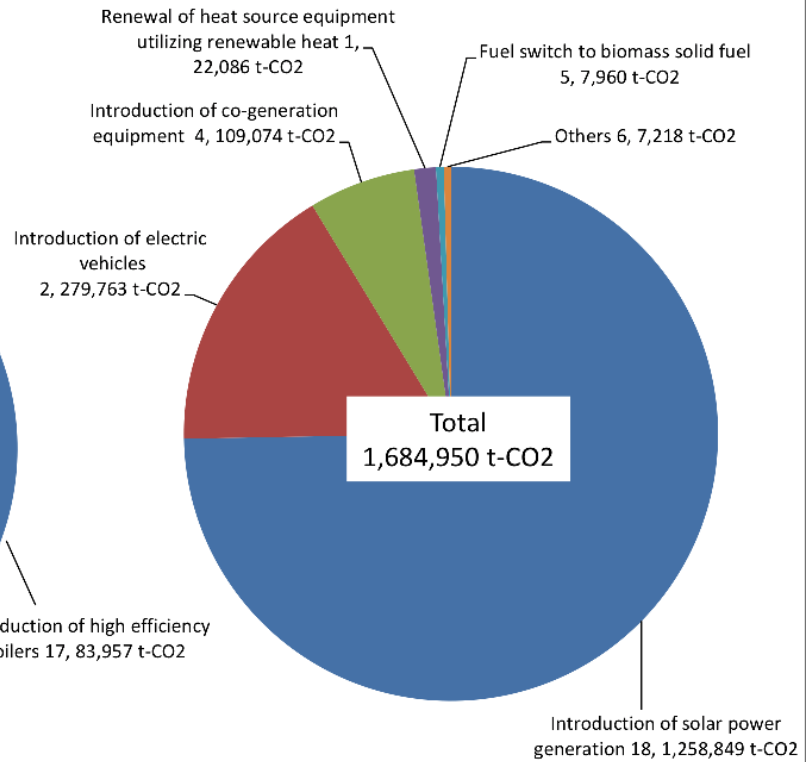
Expected emission reduction from registered projects

(March 2015)

Other than programme of activities



Programme of activities



J-Credit Demand

Users of Credits

Keidanren's
Commitment
to a low Carbon
Society

Voluntary
Carbon
Offsetting

Act on
Promotion of
Global
Warming
(※1)

Energy
Efficiency
Act
(※2)

(※1) Adjustment of amount of emission under GHG emissions reporting system based on the act on promotion of global warming countermeasures

(※2) Can report the registered projects as joint energy efficiency projects" easily under the Energy Efficiency Act

Demand Side (Large Enterprises)

1. Utilization for achievement of Voluntary Action Plan targets
2. Utilization for voluntary carbon offsetting and CSR activities (environmental protection, regional activities)
3. Report adjusted emissions taking into account the obtained credits
4. Report the registered projects as "joint energy efficiency projects" under the Energy Efficiency Act
5. Reporting to CDP questionnaire (see p.21 for more information)

J-Credit Pricing

Time	Average Price** (Yen/tCO ₂)	
June, 2016	510	
January, 2017	1,594	
April, 2017	908	
March, 2018	Renewable energy 1,716	Energy saving and others 1,148

*The average prices are calculated by dividing the total contract amount (yen) by the total volume (tCO₂) at each auction.

source: www.japancredit.go.jp/market/conner

Climate Action Reserve (CAR)

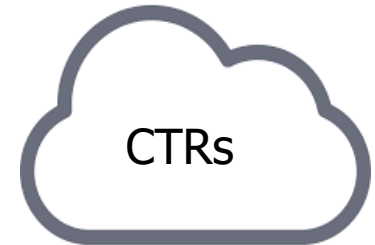


CLIMATE
ACTION
RESERVE

What is Climate Action Reserve?

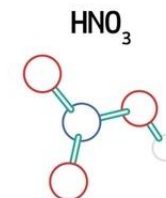
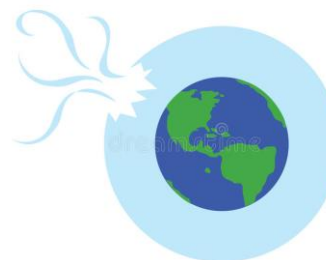
- ❖ The Climate Action Reserve is a national offsets program focused on ensuring environment integrity of GHG emissions reduction projects to create and support financial and environmental value in U.S. carbon market.
- ❖ The Climate Action Reserve Tonnes unit ; CTRs

Why Climate Action Reserve?



- ❖ Developing a high quality standard.
- ❖ Operating a transparent registry system.
- ❖ The reserve is the only U.S. program recognized by VCS.
- ❖ CRTs will be convertible into VCU – but not the reverse.
- ❖ Primary market is California cap-and-trade buyers.
- ❖ Western Climate Initiative (Quebec).

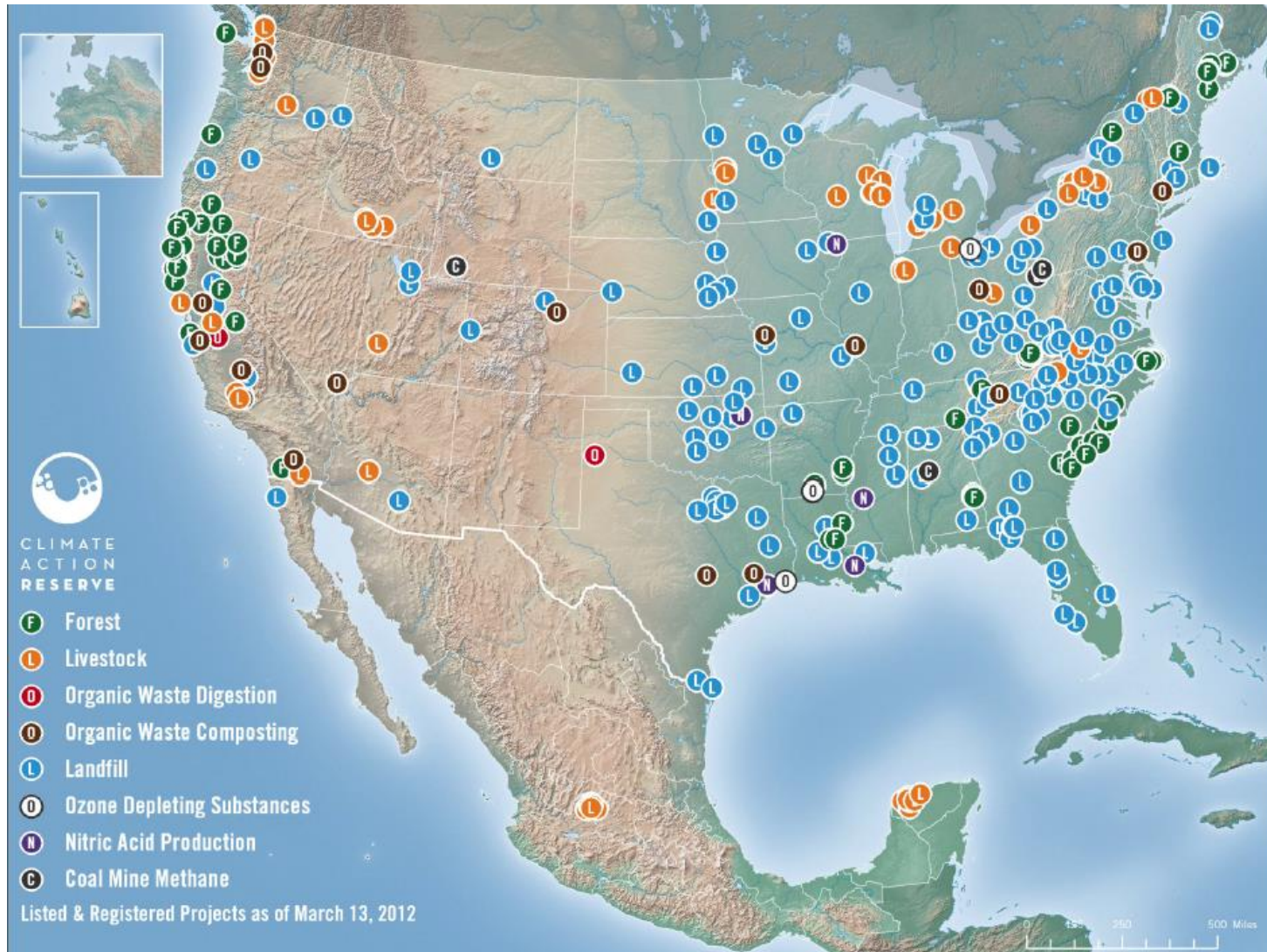
What projects are covered by the standard system



Nitric acid



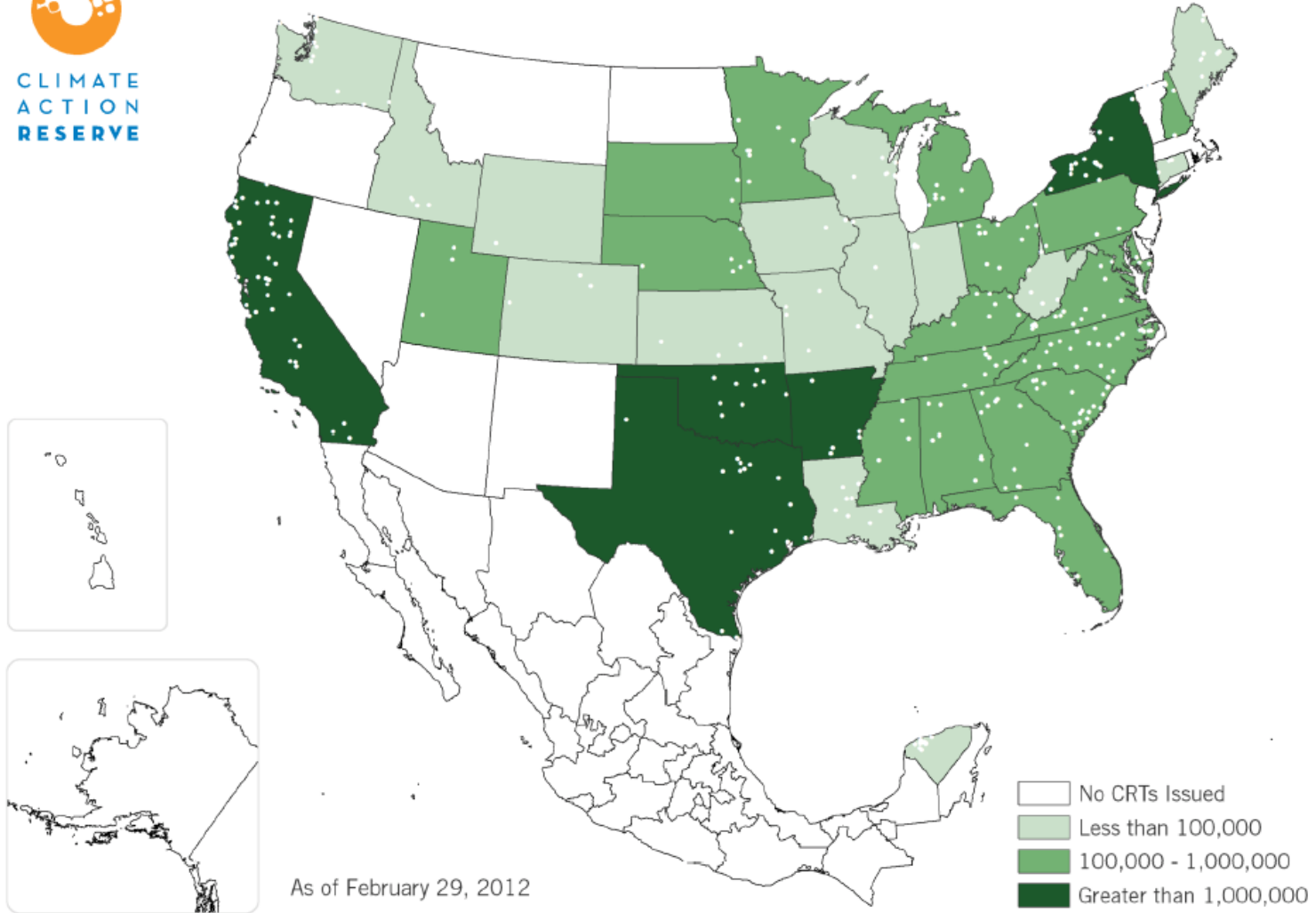
Climate Action Reserve (CAR)



(April, 2012)



CRTs Issued



The Reserve Process



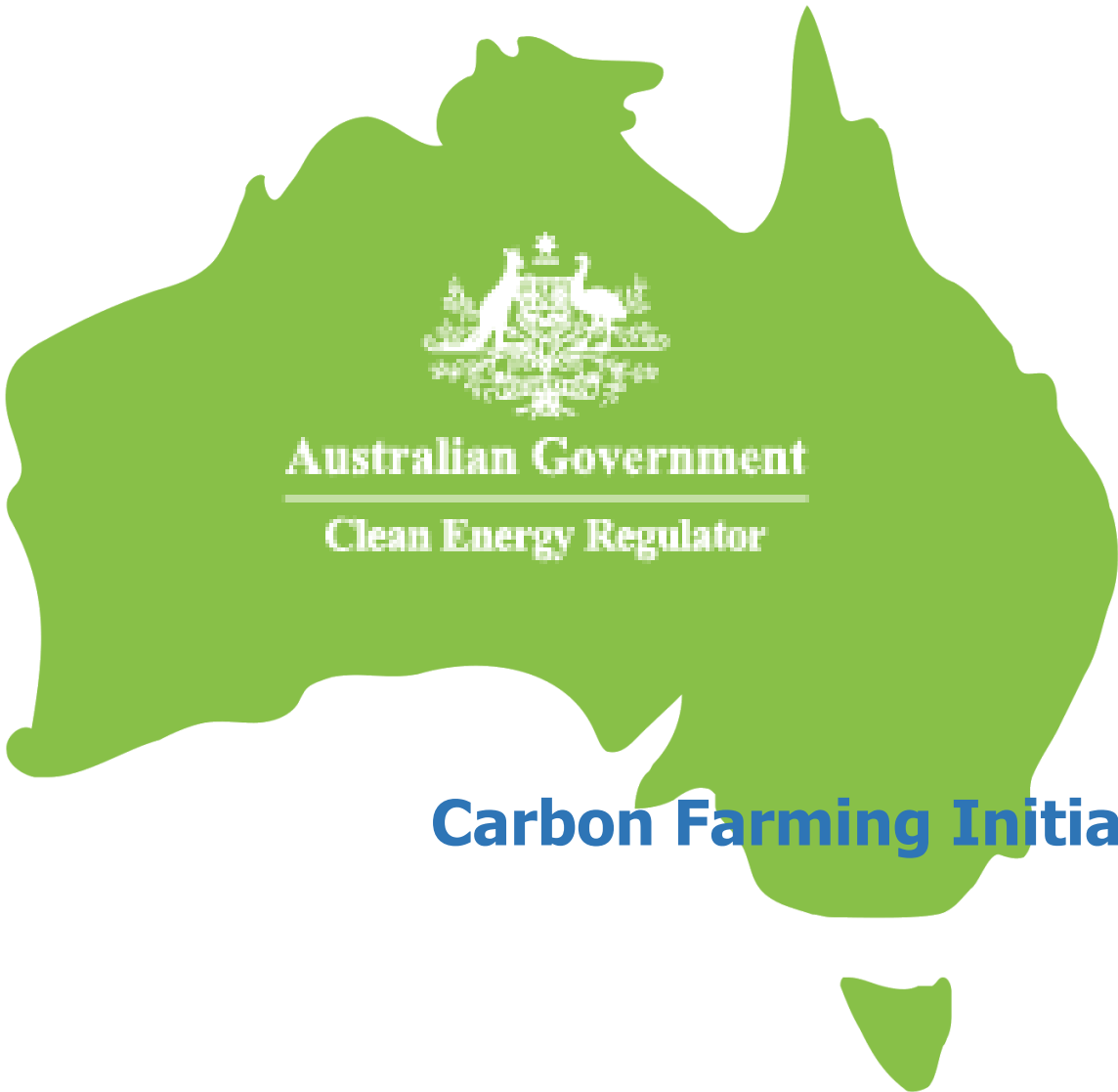
CAR Program Highlights

- ❖ Over the course of the year, the Reserve registered 41 new offset projects that earned 9.8 million offset credits.
- ❖ In October 2017, the CAR reached the milestone achievement of issuing over 100 million offset credits.
- ❖ The CAR reports that over 5.3 million CTRs were retired through 440 transactions in the voluntary carbon market during 2017, bringing the total offset retirement of CRTs since the program began to 30.4 million.
- ❖ In 2017, the CAR update several of its offset project protocols as part of its ongoing effort to incorporate best practices, improved stands and stakeholder input.
 - Mexico Forest Protocol Version 1.5
 - Forest Project Protocol Version 4.0
 - Grassland Project Protocol Version 2.0
 - Nitrogen Management Project Protocol (NMPP)

CTRs in California Carbon Market Demand

Compliance Period	Year	Allowance Budget (MtCO ₂ e)	Total Offset Demand
First	2013	162,800,000	26,800,000
	2014	159,700,000	
Second	2015	394,500,000	91,784,000
	2016	382,400,000	
	2017	370,400,000	
Third	2018	358,300,000	83,104,000
	2019	346,300,000	
	2020	334,200,000	

source: Reserve 101 Workshop, 2012



Carbon Farming Initiative (CFI)

What is Carbon Farming Initiative?

- ❖ Australia's Carbon Farming Initiative (CFI) allows farmers and land managers to earn carbon credits by storing carbon or reducing greenhouse gas emissions on the land.
- ❖ The CFI also helps the environment by encouraging sustainable farming and providing a source of funding for landscape restoration projects.
- ❖ Participation in the CFI is voluntary; farmers and landholders can choose whether or not to be involved.
- ❖ Carbon credits earned under the CFI are called Australian Carbon Credit Units (ACCUs).

Why carbon farming?

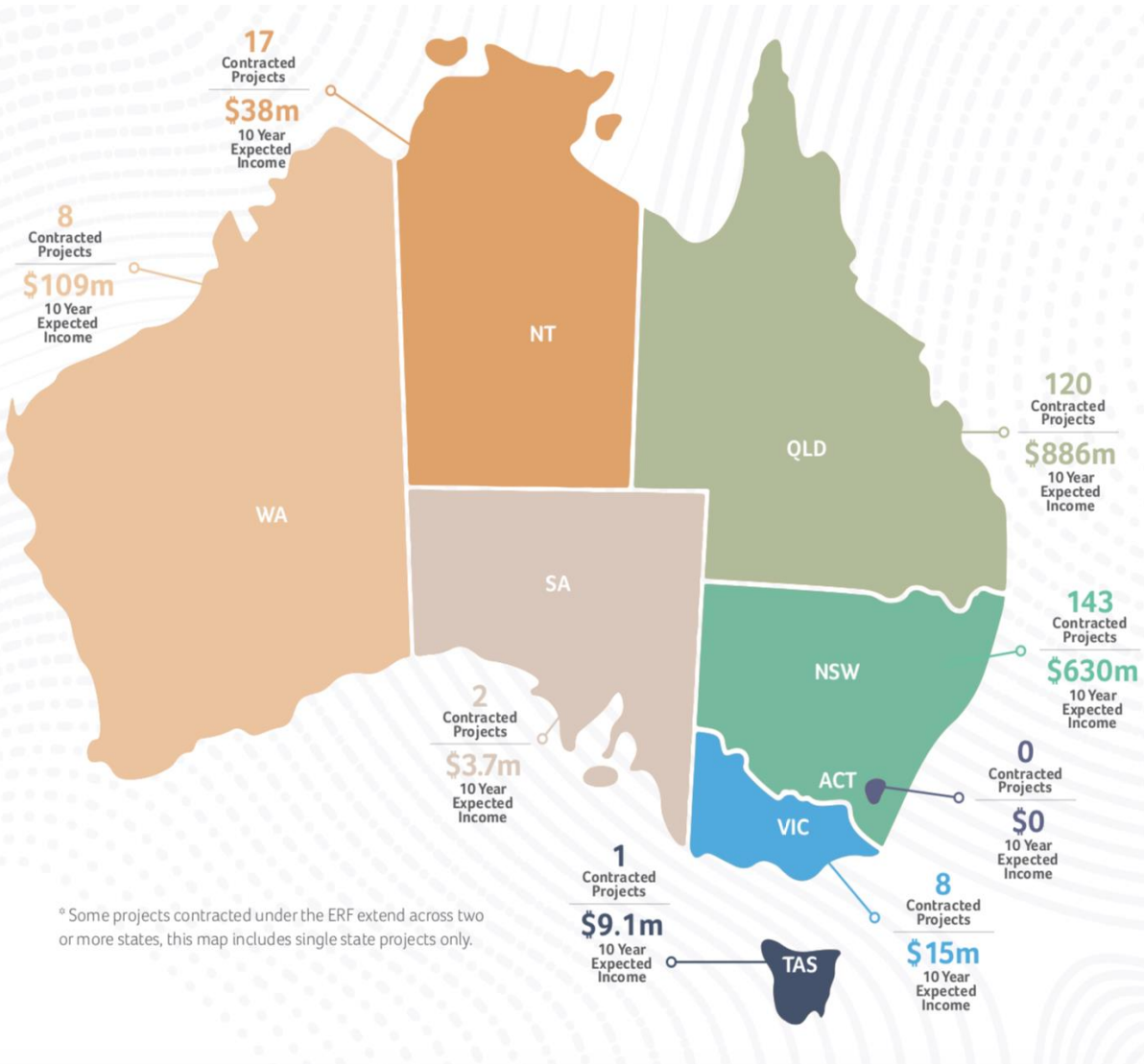
- ❖ Increasing carbon in the soil is a good thing because it makes the land more productive.
- ❖ The agricultural sector contributes about 18% of these emissions and its potential to contribute a lasting solution to the problem is significant.



What projects are covered by the standard system



Carbon Farming Initiative (CFI)



* Some projects contracted under the ERF extend across two or more states, this map includes single state projects only.

Vegetation

- Regenerating native forest on previously cleared land.
- Protecting native forests by reducing land clearing.
- Planting trees to grow carbon stocks.

Savanna Burning

- Managing bushfires in Australia's savannas to avoid high-intensity, late-season fires.

Agriculture

- Building soil carbon through changed farming practices such as crop stubble retention.
- Reducing emissions from beef cattle and milking cows through dietary supplements or efficient herd management.
- Capturing and destroying the methane from effluent waste at piggeries.

ACCUs from CFI Demand

- ❖ In 2014, the CFI was transitioned into the Emission Reduction Fund (ERF) via amendments to the CFT Act.
- ❖ The ACCUs from CFI projects can be demanded in Voluntary Australian carbon market.
- ❖ As at October 2017, the Clean Energy Regulator has held five ERF auctions with the total contracted abatement approximately 189 million tonnes. The volume weighted average price of contracted abatement across the five auctions is \$11.83 per tonne of CO₂e.

source: Carbon Farming Industry Roadmap

Carbon Farming Scenarios 2020-2030
An Industry Perspective

SCENARIO 1	SCENARIO 2	SCENARIO 3
Australia fails to meet its NDC (No Further Action)	Australia meets its NDC (Central)	Australia over-achieves its NDC (2°C Scenario)
2020-2030 abatement achieved is 650 MtCO₂e	2020-2030 abatement achieved is 900 MtCO₂e	2020-2030 abatement achieved is 1200 MtCO₂e
KEY MARKET INDICATORS		
LAND SECTOR ABATEMENT		
195 - 260 MtCO₂e Stakeholders assumptions: land sector contributes 30-40% to Australia's 2020-2030 abatement	270 - 360 MtCO₂e Stakeholders assumptions: land sector contributes 30-40% to Australia's 2020-2030 abatement	360 - 480 MtCO₂e Stakeholders assumptions: land sector contributes 30-40% to Australia's 2020-2030 abatement
CARBON INCOME (AUD)		
\$1.4b - \$3.6b Stakeholders assumptions: 195 - 260 MtCO ₂ e abated and an average carbon price of A\$7-\$14/tonne	\$4.1b - \$10.4b Stakeholders assumptions: 270 - 360 MtCO ₂ e abated and an average carbon price of A\$15-\$29/tonne	\$10.8b - \$24b Stakeholders assumptions: 360 - 480 MtCO ₂ e abated and an average carbon price of A\$30-\$50/tonne
JOBS		
5,700 - 11,400 jobs Stakeholders assumptions: (median) 228 MtCO ₂ e abated. Jobs growth of 25-50 jobs per MtCO ₂ e abated	7,875 - 15,750 jobs Stakeholders assumptions: (median) 315 MtCO ₂ e abated. Jobs growth of 25-50 jobs per MtCO ₂ e abated	10,500 - 21,000 jobs Stakeholders assumptions: (median) 420 MtCO ₂ e abated. Jobs growth of 25-50 jobs per MtCO ₂ e abated

source: Carbon Farming Industry Roadmap



Forestry in New Zealand ETS



How Forestry work in NZ-ETS ?

- ❖ Forestry is the first sector entered the NZ-ETS since 1 January 2008.
- ❖ The importance of forestry is to NZ's ability to meet its international obligations for GHG emissions.
- ❖ Carbon credit generated from Forestry sector in NZ-ETS called "NZUs"

Why the forestry sector?

- ❖ Forestry is important in helping NZ meet its international climate change obligation.
- ❖ Encouraging landowners to establish and manage forests in the way that increases carbon storage.
- ❖ Voluntary to participate.

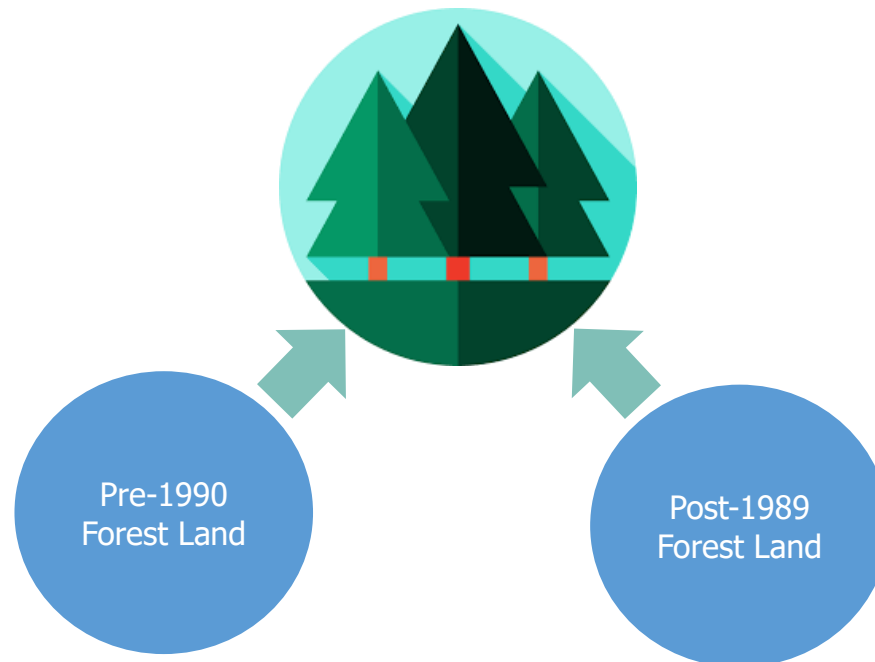


Forest land in the ETS

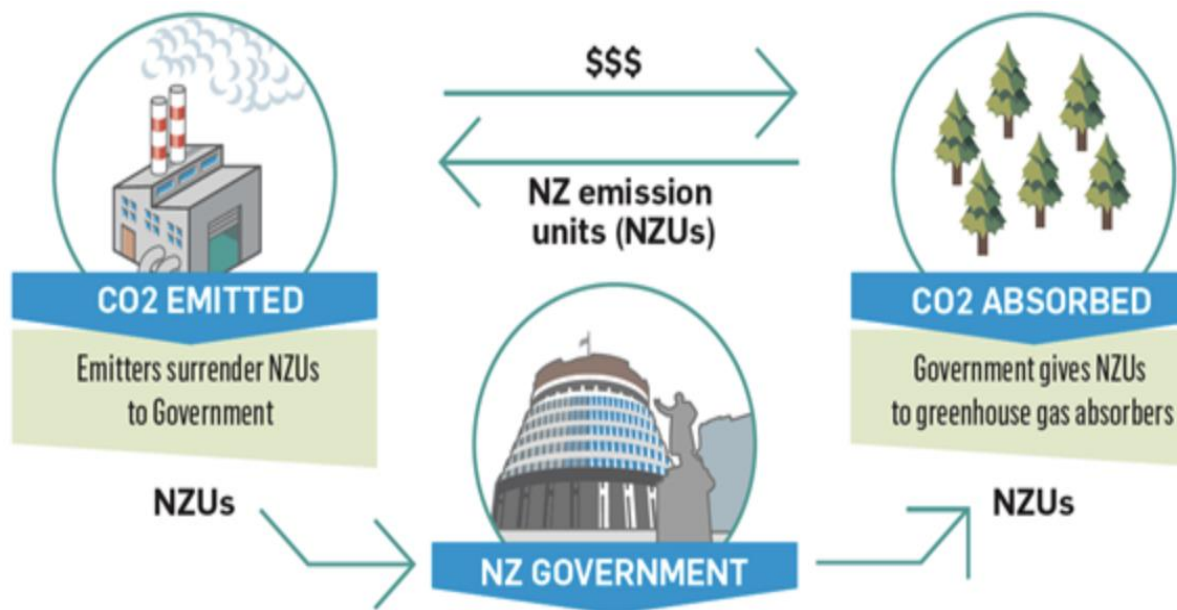
Forest land has a specific definition under the ETS. It must be at least a hectare in size and have tree crown cover:

- from forest species of more than 30% in each hectare.
- with an average width of at least 30 metres.

Forest species in the ETS are those that can reach at least 5 metres in height at maturity. They do not include trees grown primarily for fruit or nuts.



Forestry NZ-ETS Process



Step 1: Get consent
Get consent from those with a registered interest in the land.

Step 2: Open a holding account
Create an account with the New Zealand Emission Trading Register.

Step 3: Map your forest
Create an electronic map of the forest land you want to register.

Step 4: Apply to register as an ETS participant
Submit your application to MPI online or by post.

THANK YOU!



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