



RenewWest

“Redefining how Americans value our forests”





RenewWest

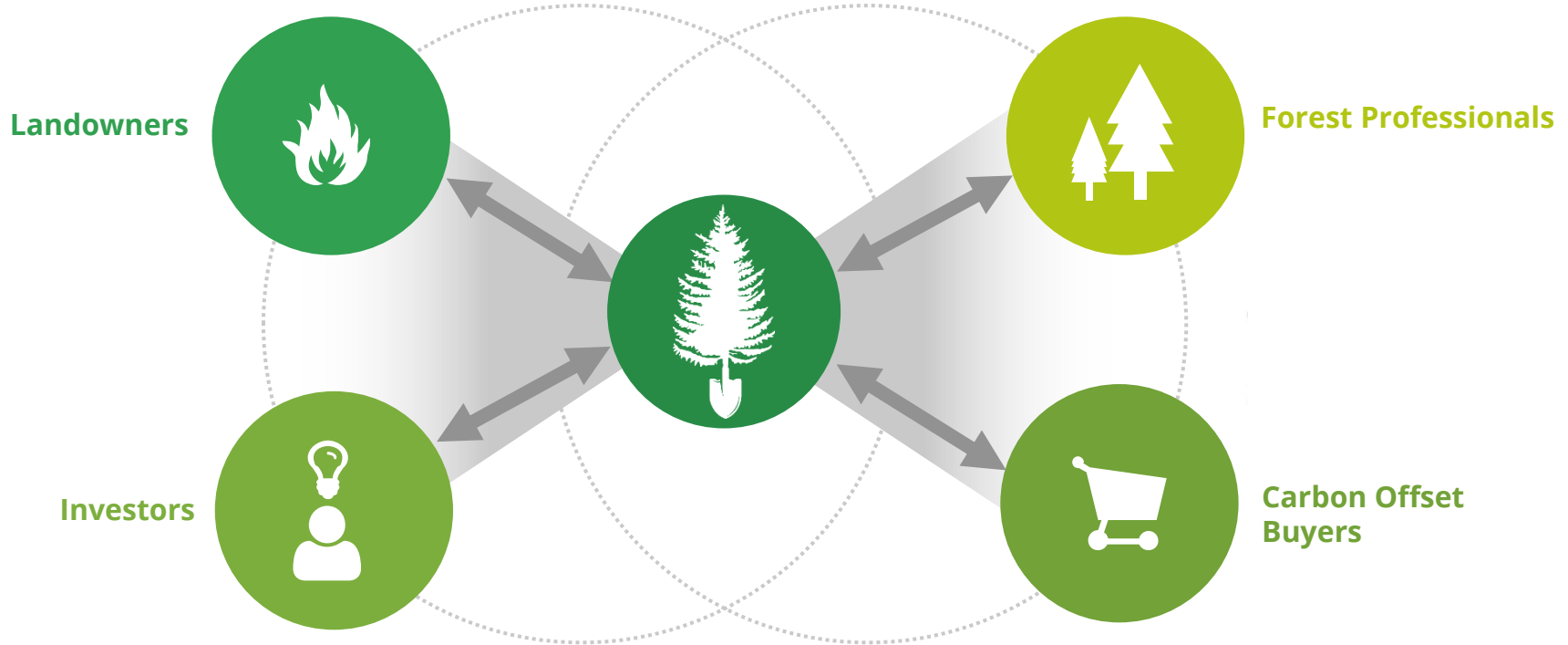
Restoring Forests

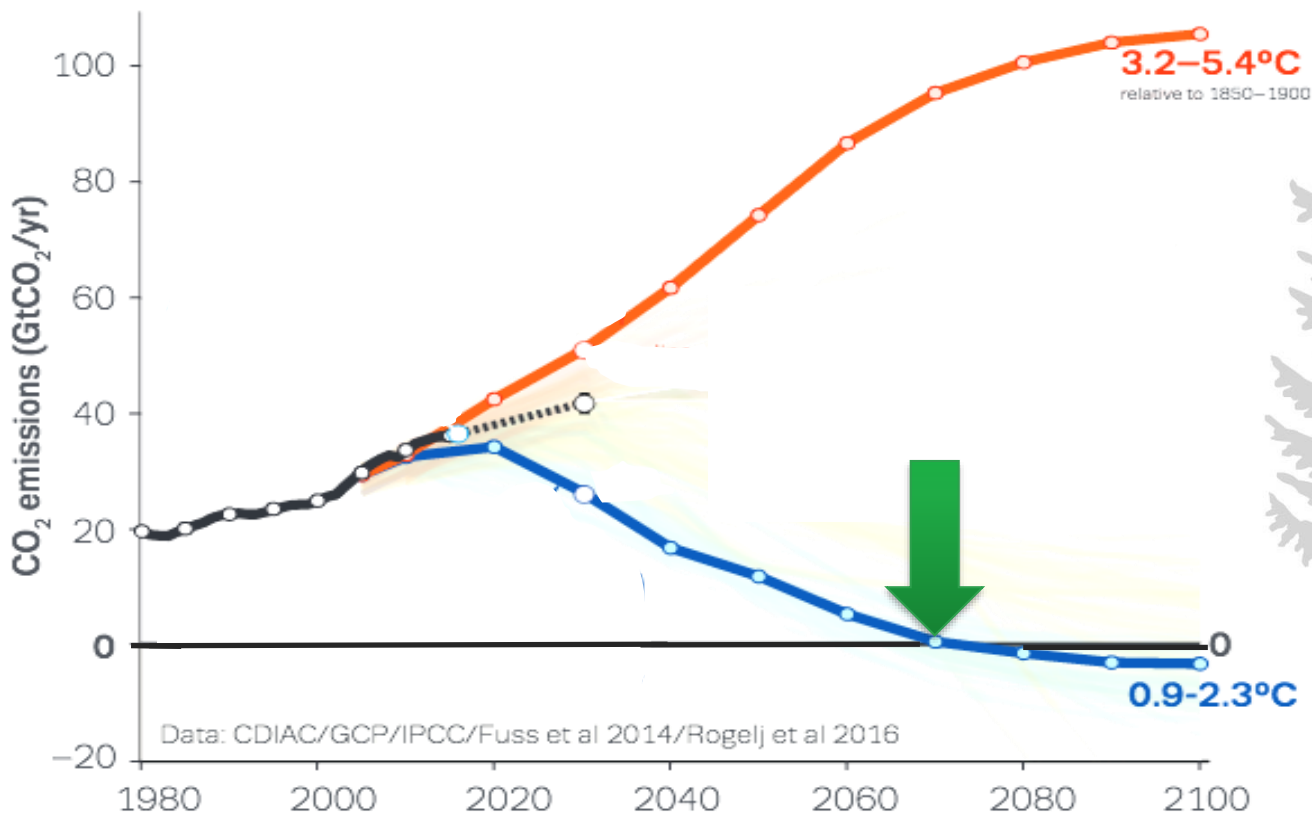


RenewWest makes money grow with trees by taking destroyed landscapes and restoring them to health.



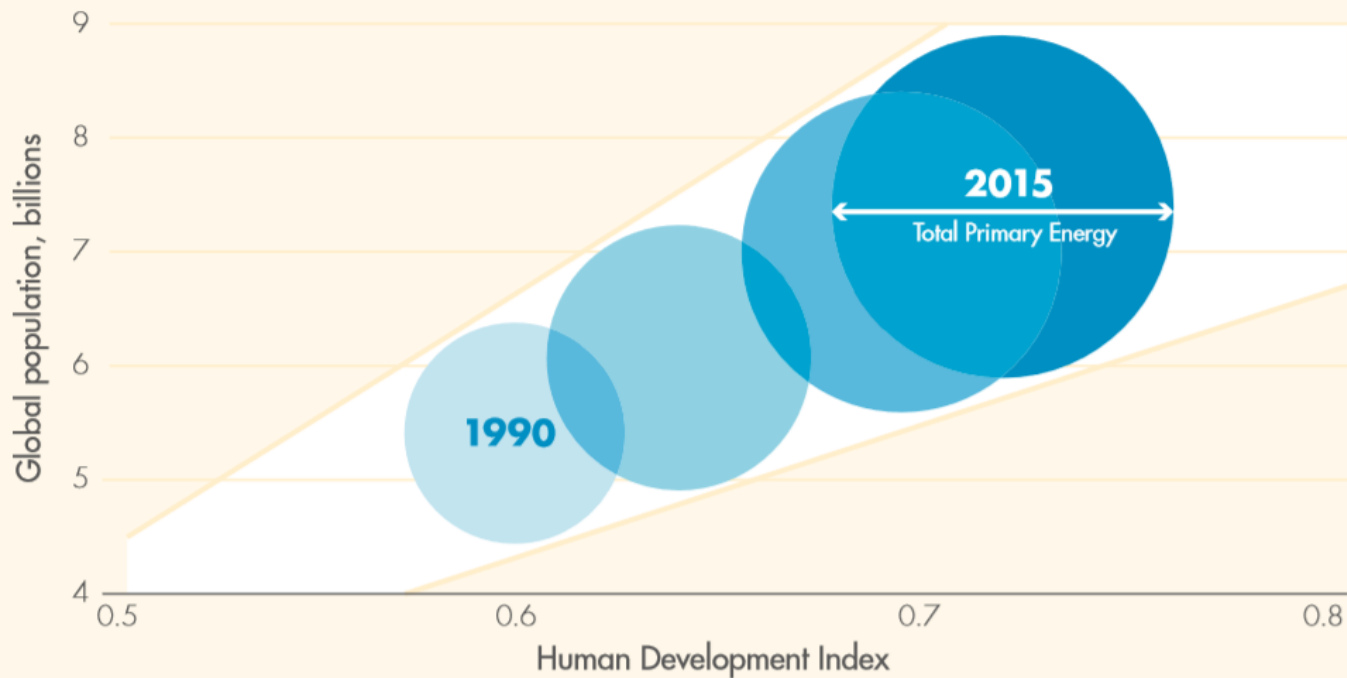
Over 9 Million Acres Burned in 2018
Larger Than 9 Individual States and DC

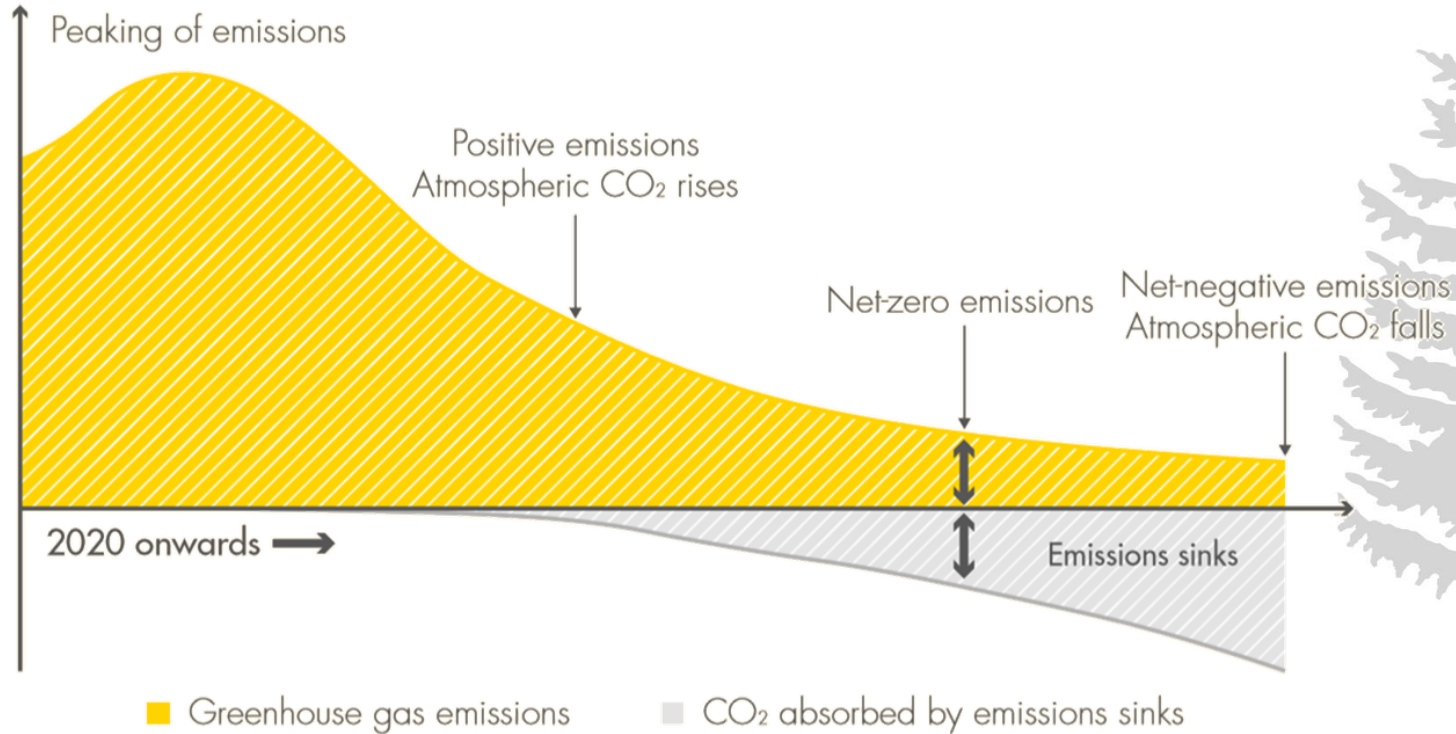






WORLD ENERGY DEMAND RISES WITH POPULATION AND DEVELOPMENT





Source: Shell schematic



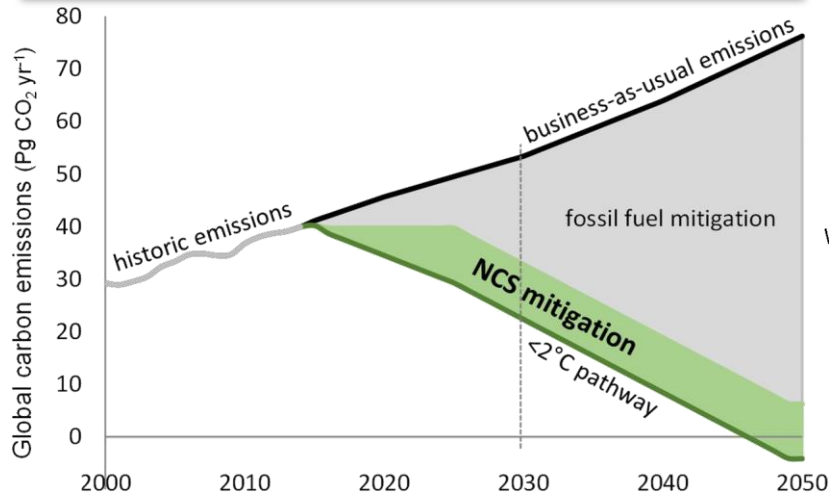
Natural climate solutions

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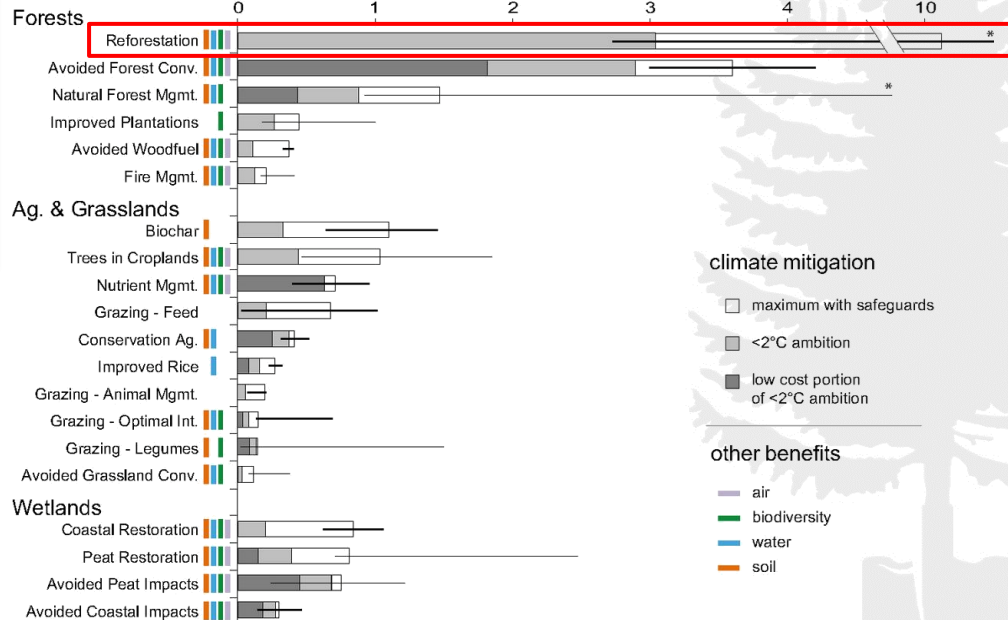
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Contributed by William H. Schlesinger, September 5, 2017 (sent for review June 26, 2017; reviewed by Jason Funk and Will R. Turner)

Better stewardship of land is needed to achieve the Paris Climate Agreement goal of holding warming to below 2 °C; however, confusion persists about the specific set of land stewardship options available and their mitigation potential. For instance, this work identifies use change, including forestry (4.9 PgCO₂e y⁻¹) and agricultural activities (6.1 PgCO₂e y⁻¹), which generate methane (CH₄) and nitrous oxide (N₂O) in addition to CO₂ (4, 5). Thus, ecosystems



Climate mitigation potential in 2030 (PgCO₂e yr⁻¹)

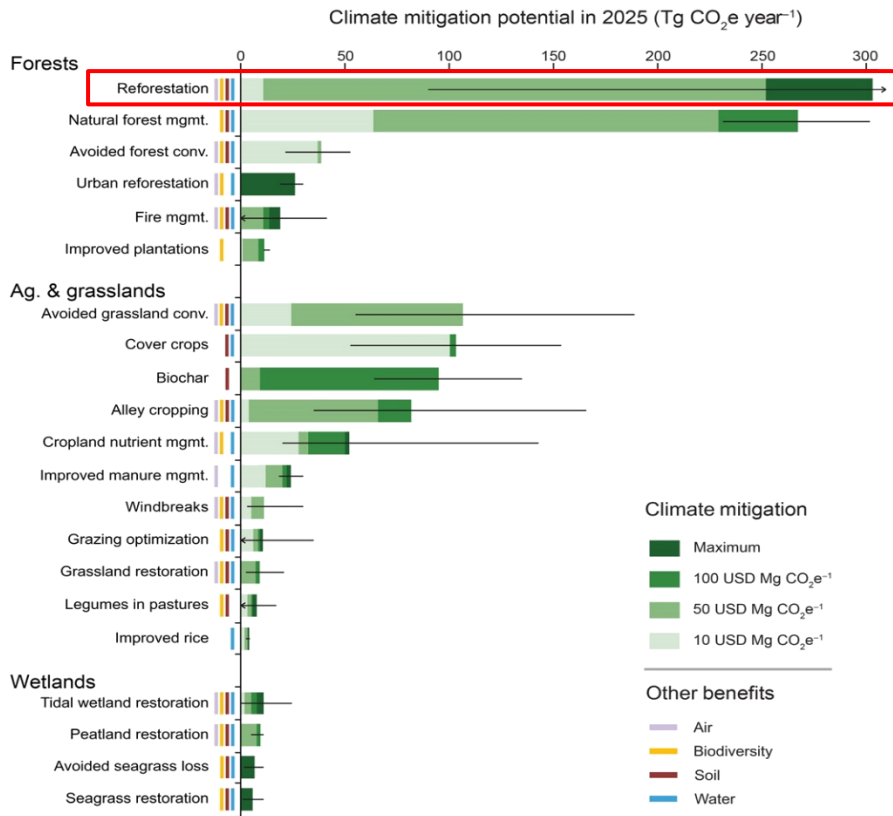


climate mitigation

- maximum with safeguards
- <2°C ambition
- low cost portion of <2°C ambition

other benefits

- air
- biodiversity
- water
- soil



SCIENCE ADVANCES | RESEARCH ARTICLE

ENVIRONMENTAL STUDIES

Natural climate solutions for the United States

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Limiting climate warming to <2°C requires increased mitigation efforts, including land stewardship, whose potential in the United States is poorly understood. We quantified the potential of natural climate solutions (NCS)—21 conservation, restoration, and improved land management interventions on natural and agricultural lands—to increase carbon storage and avoid greenhouse gas emissions in the United States. We found a maximum potential of 1.2 (0.9 to 1.6) Pg CO₂e year⁻¹, the equivalent of 21% of current net annual emissions of the United States. At current carbon market prices (USD 10 per Mg CO₂e), 299 Tg CO₂e year⁻¹ could be achieved. NCS would also pro-



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Carbon Markets Worldwide



\$54 Billion
Total Available Market



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Western Climate Initiative

\$8.4 Billion Target Market

Market Endorsements:



*Pacific Gas and
Electric Company*



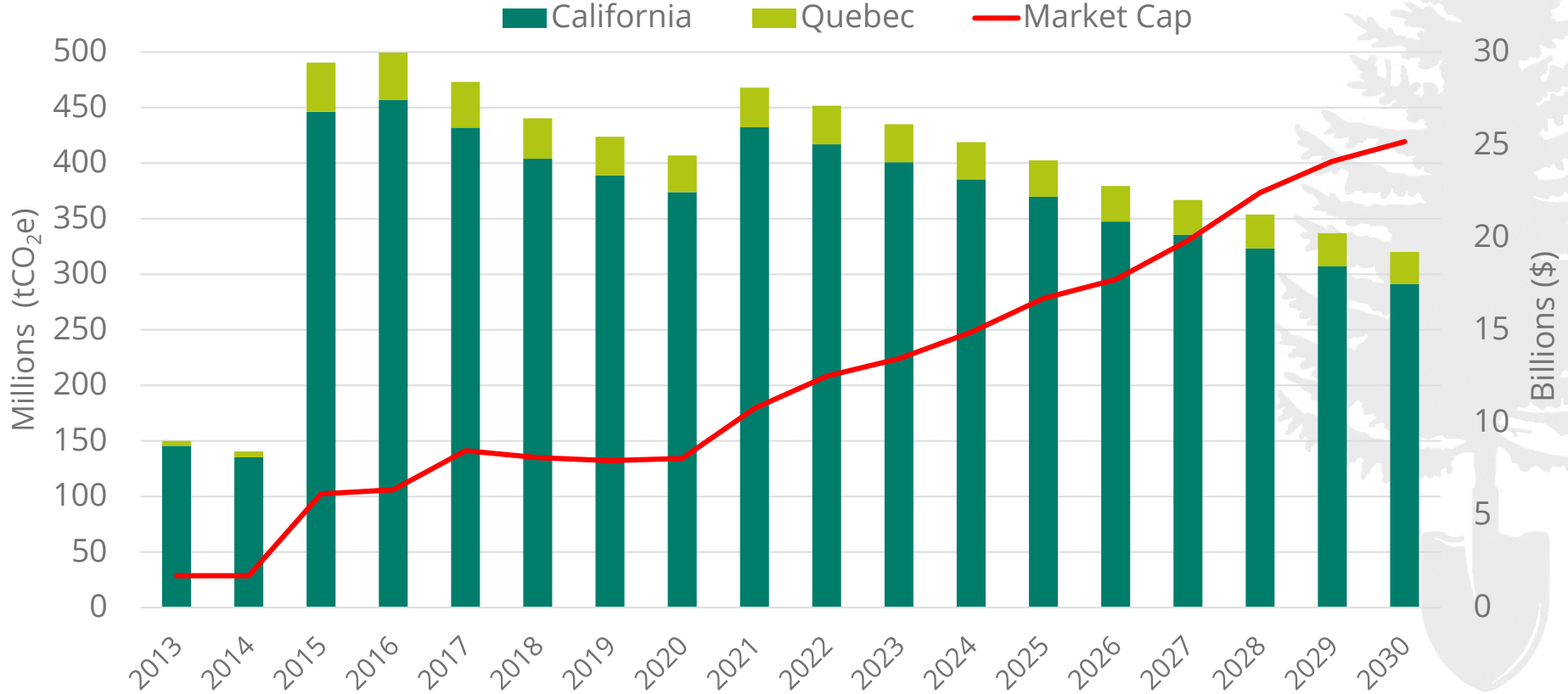
THE SACRAMENTO BEE

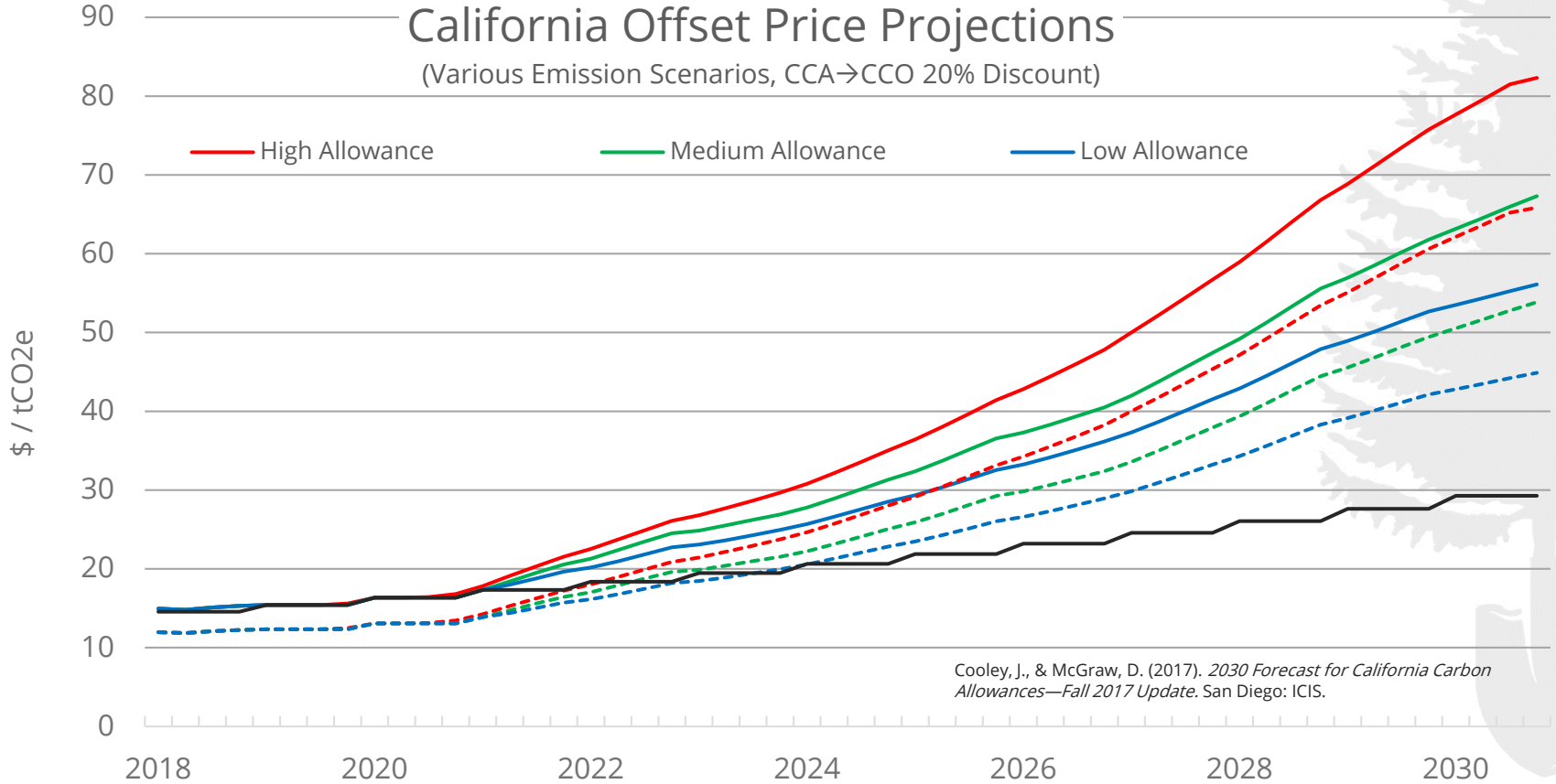




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Market Size







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Voluntary Market Players



THE BOTTOM LINE:

TAKING STOCK OF THE ROLE OF OFFSETS
IN CORPORATE CARBON STRATEGIES

FedEx
Barclays
Microsoft
Norfolk Southern
Northrop Grumman
Toyota
Coca-Cola

| | | |
|---|--------------------------------------|---|
| Absa Group | Exelon Corporation | NRG Energy Inc |
| Aimia Inc. | FedEx Corporation | Olam International |
| Allianz SE | General Motors Company | Old Mutual plc |
| Amdocs Ltd | Goldman Sachs Group Inc. | ORIX Corporation |
| AMP | Google Inc. | Pearson |
| Astellas Pharma Inc. | Green Mountain Coffee Roasters, Inc. | PG&E Corporation |
| Atos SE | Groupe Steria | PPR |
| AU Optronics | H&M Hennes & Mauritz AB | PSA Peugeot Citroen |
| Australia and New Zealand Banking Group | Hanesbrands Inc. | PUMA SE |
| Aviva | Hess Corporation | Qantas Airways |
| Banco Santander Brasil | ING Group | Riooh Co., Ltd. |
| Bank of Montreal | Insurance Australia Group | RSA Insurance Group |
| Barclays | Interface, Inc. | Sanlam |
| Barlworld | J.B. Hunt Transport Services, Inc. | Schneider Electric |
| Bombardier Inc. | JPMorgan Chase & Co. | SGS SA |
| British American Tobacco | Kering | Skandinaviska Enskilda Banken AB (SEB AB) |
| British Sky Broadcasting | Kohl's Corporation | Societe Generale |
| Cap Gemini | Lenovo Group | Sony Corporation |
| Capital One Financial | Macquarie Group | State Street Corporation |
| Catlin Group Ltd | Marks and Spencer Group plc | Swiss Re |
| Clorox Company | Microsoft Corporation | TD Bank Group |
| Commerzbank AG | Mitsubishi Heavy Industries, Ltd. | Telstra Corporation |
| Compagnie Financière Richemont SA | Mitsubishi UFJ Financial Group, Inc. | The Coca-Cola Company |
| Coop Genossenschaft | Munich Re | Toyota Motor Corporation |
| Credit Suisse | National Australia Bank | TransAlta Corporation |
| Daiichi Sankyo Co., Ltd. | Natura Cosméticos S.A. | TUI |
| Danone | Nedbank Limited | UBS |
| Danske Bank A/S | News Corporation | UniCredit |
| Delta Air Lines | NKSJ Holdings, Inc. | UPS |
| Deutsche Bank AG | Noble Group | VF Corporation |
| Deutsche Post AG | Norfolk Southern Corp. | Walt Disney Company |
| Deutsche Telekom AG | Northrop Grumman Corp | Westpac Banking Corporation |
| Entergy Corporation | Novartis | WPP Group |
| Estee Lauder Companies Inc. | | |



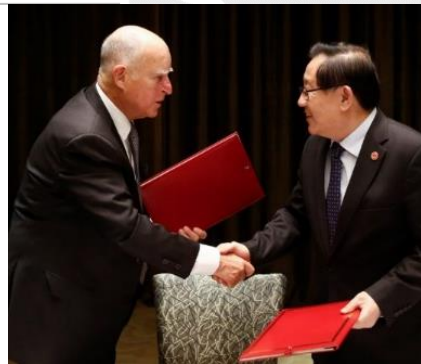


CORSIA

- Carbon Offsetting & Reduction Scheme for International Aviation is to be implemented in three phases, with mandatory participation for nearly all commercial passenger air travel beginning in 2027.
- Expected CORSIA-related demand for carbon offsets through 2040 may total up to eight billion offsets.

China

- Has experience with seven different regional carbon markets and is bringing national carbon market online.
- Recently signed agreement with California for cooperation on climate. Both parties are interested in developing a common market.



Gov Brown & Minister Wan (June 7th, 2017)

Corporate Social Responsibility

- Feeling pressure from various stakeholders – investors, customers, general public – corporations of all scales are increasingly focusing on carbon offsetting. Examples:
 - Kaiser Permanente’s 2020 goal
 - Microsoft partnership with Nisqually Indians

 KAISER PERMANENTE, AT A GLANCE

Carbon neutral
by 2020

We’re leading the fight
against climate change



Compliance Entity Hedging

- Seeing that carbon costs are a long-term risk, entities within compliance markets are seeking to hedge. Examples include:
 - Shell Energy in the WCI and EU ETS
 - ENI planting 20 million acres of forest in Africa

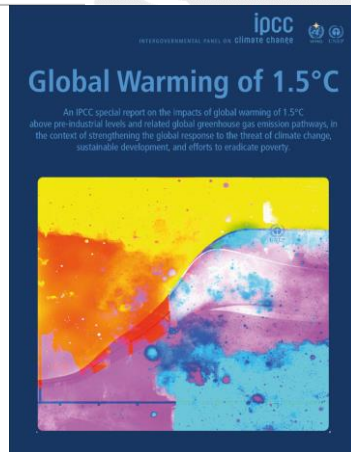


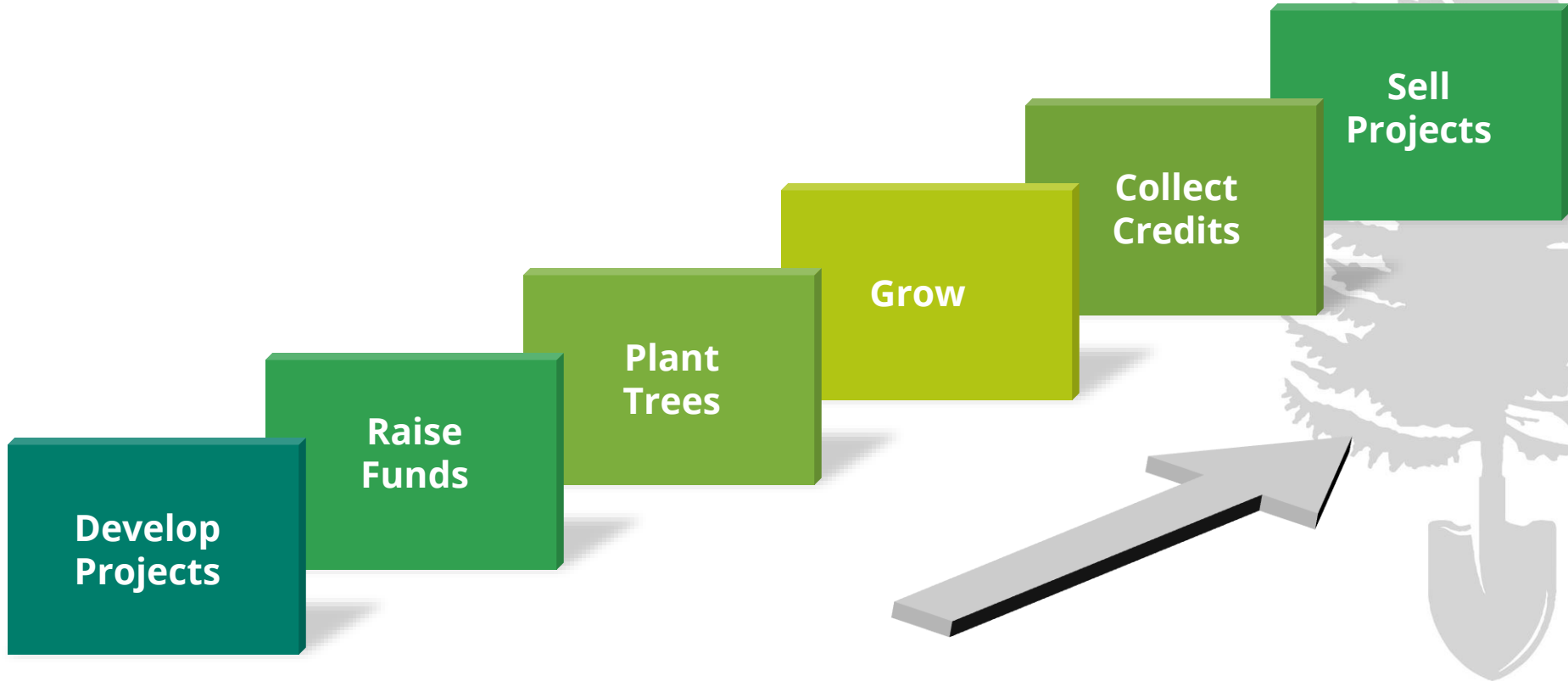
State / Local Government

- Recognizing lack of effort at federal level, state and municipal governments are feeling political pressure to act from constituents.
- Causing wide adoption of carbon standards amongst cities and increasing focus on carbon markets at the state level (Oregon, Washington, Colorado, New Jersey, Virginia)

IPCC Report

- New evidence indicates that previous limit (2°C) will have more severe consequences than expected. New limit of 1.5°C is needed, but shifts timeline to react by 20 years.
- The efforts of others (government, corporate) are and will continue to be accelerated as a result







Nelson, M. D., Likhnes, G. C., & Butler, B. J. (2007). *Map of Forest Ownership in the Conterminous United States*. U.S.D.A. Forest Service.

Working across the Western Mountain States

- 237 million acres of non-federal forests in the 13 affected states (Alaska not shown).
- The region increasingly experiences large fires, with annual totals growing by seven fires per year. Demonstrates a mounting need and opportunity for reforestation.
- Little/no significant carbon reforestation work occurring in the region, despite a loss of 4.2% of total forest cover in recent decades.
- Only existing investment opportunity for reforestation is focused on timber harvest. Extremely limited by time scales for trees to grow to merchantable size and a value extraction mindset.

(2001). *U.S. Forest Facts and Historical Trends*. U.S.D.A. Forest Service.

U.S. Geological Survey. (2012). *Status and Trends of Land Change in the Western United States - 1973-2000*. Reston, VA: U.S. Department of Interior.

Dennison, P. E., Brewer, S. C., Arnold, J. D., & Moritz, M. A. (2014). Large wildfire trends in the western United States, 1984–2011. *Geophysical Research Letters*, 2928–2933.



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“Redefining how Americans value our forests”

