

# How Climate Cap & Trade Works for California

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# What are carbon markets?

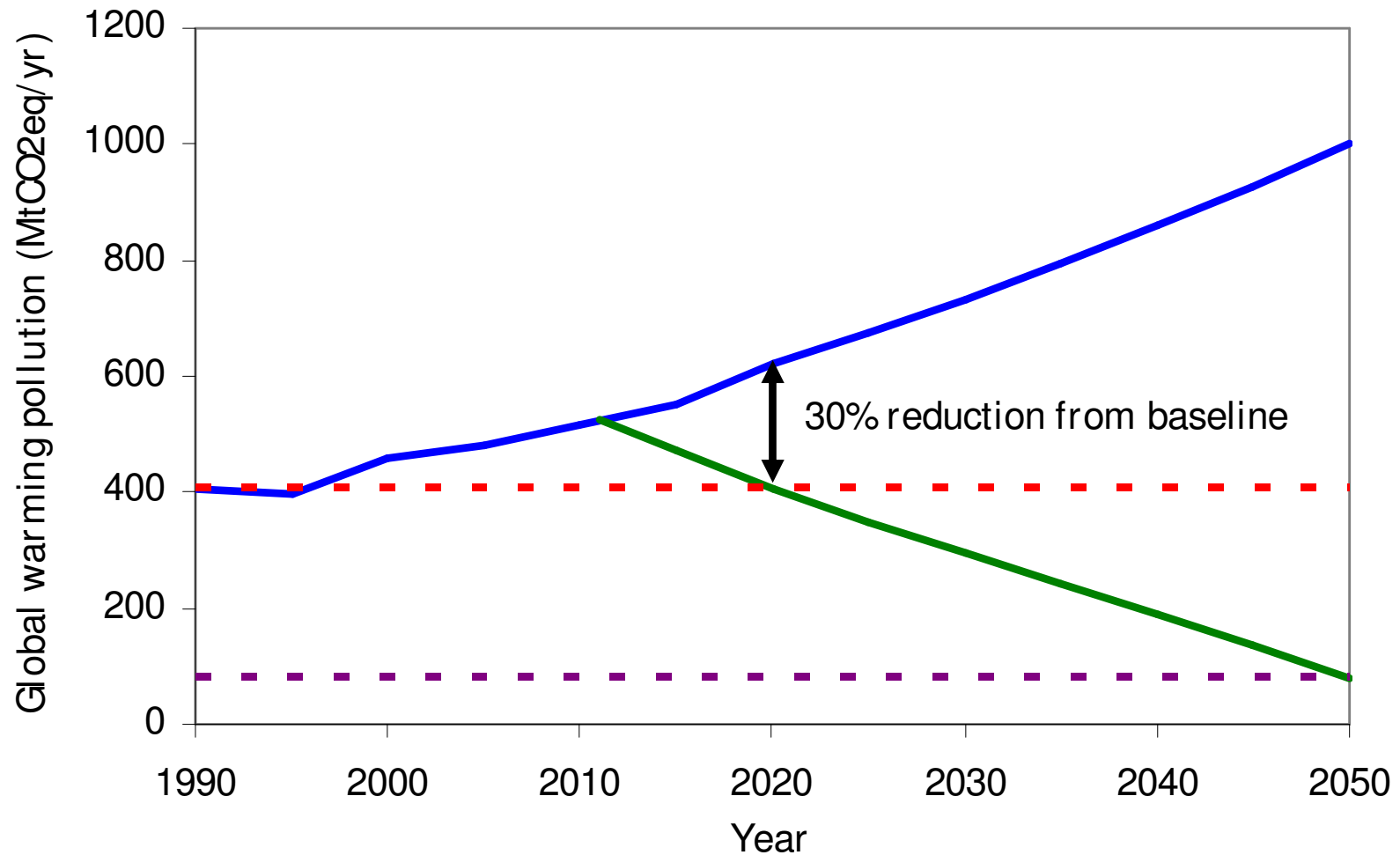
- Voluntary
- Regulatory via Cap-and-Trade
  - **Cap** for **environmental integrity**
  - **Allowances** for trading
  - **Allocation** for distributing initial ownership
  - **Monitoring** and verification for integrity

# Requirements of California's Global Warming Solution's Act

- Statewide Emissions **Cap**
  - 1990 Emissions by 2020
  - 80% below 1990 by 2050
- “Minimize” costs & “Maximize” benefits
- Protect & benefit low-income and disadvantaged communities

## 2020 Goal:

Lower emissions by ~170 million metric tons CO<sub>2</sub>e



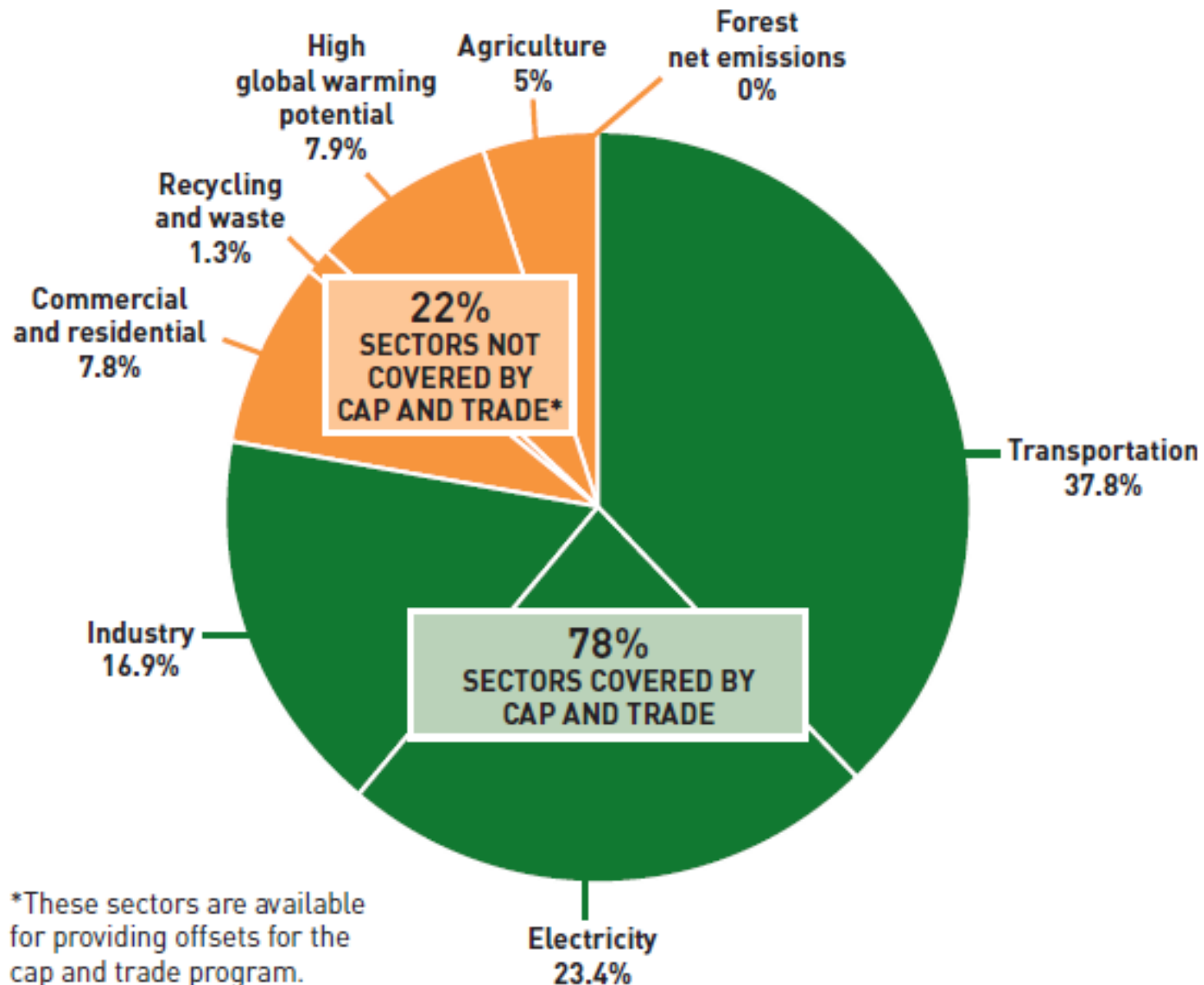
— Baseline emissions — Target emissions  
- - - 2020 target - - - 2050 target

# California AB32 Scoping Plan Includes 70 Measures

- Utilities
  - Renewable Power
  - Efficiency
- Vehicles
  - Emissions Standards
  - Low Carbon Fuels
  - Fuel Efficiency
- Many more!
- Cap-and-trade
  - Electricity Producers
  - Large Industry
    - Refineries
    - Cement
  - Transportation (in 2015)
  - Natural Gas (in 2015)

# Sources of greenhouse gas emissions in California in 2020

## Projections under business as usual



# Summary Rationale for Cap-and-Trade

- Environmental integrity
- Early low cost solutions incentivized
- Innovation incentivized
- Price responds at pace of business not regulatory rulemaking
- Low cost administration & enforcement
- National and International market links

# Challenges of Carbon **Taxes**

- No guarantee of environmental performance
- Price certainty
- Political Barriers (2/3 vote in legislature)
- Hard to set right tax amount
- Regressive economic impacts
- Must decide how to spend revenue

# Cap-and-Trade Environmental Justice Protections in AB32

- Emissions cap declines over time
- Achieve same reductions as any other measure
- No increase of air toxics or criteria pollutants
- Don't hinder ambient air quality standards efforts
- Consider localized impacts
- No disproportionate impact on low-income and disadvantaged communities
- Maximize environmental and economic benefits

# Cap and Trade Design Issues

- ✓ Caps for 2020 and 2050
- Caps for 2012 thru 2019
- Sectors to include in cap
- Allowance allocation method
- Allowance price volatility management
- Linkages to other markets
- Role and reliability of offsets
- EJ protections and how to spend revenue
- Exemptions and loopholes
- Reporting, monitoring & enforcing

# Thank you!

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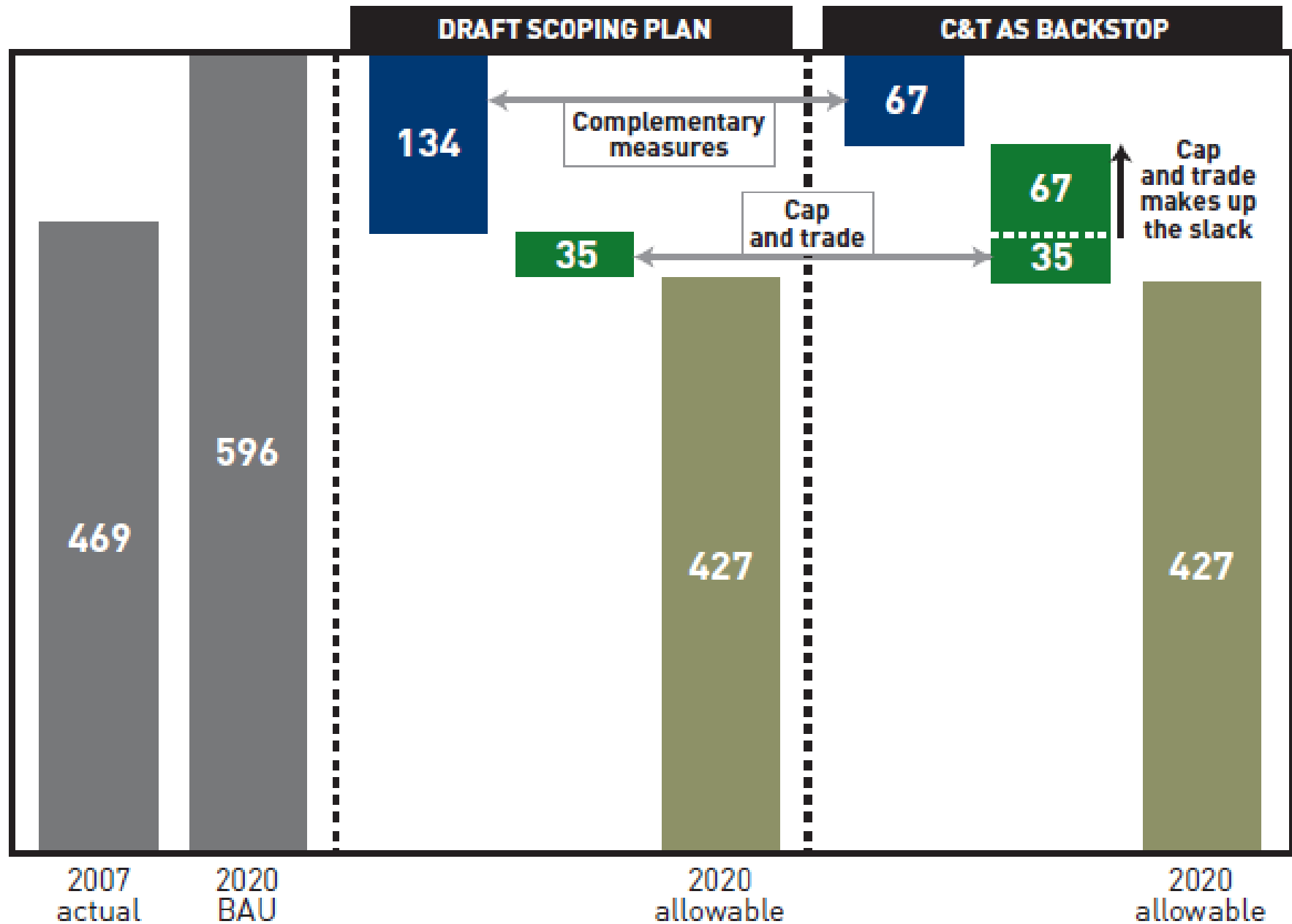
Environmental Defense Fund  
[www.environmentaldefense.org](http://www.environmentaldefense.org)



# Cap-and-Trade and Cap-and-Dividend

- Same Concept
- Cap guarantees environmental goal
- Dividend is allowance revenue returned to consumers/producers
- Trading gets all low-cost reductions
- Cap-and-Dividend-and-Trade

# in achieving emissions reductions under AB32

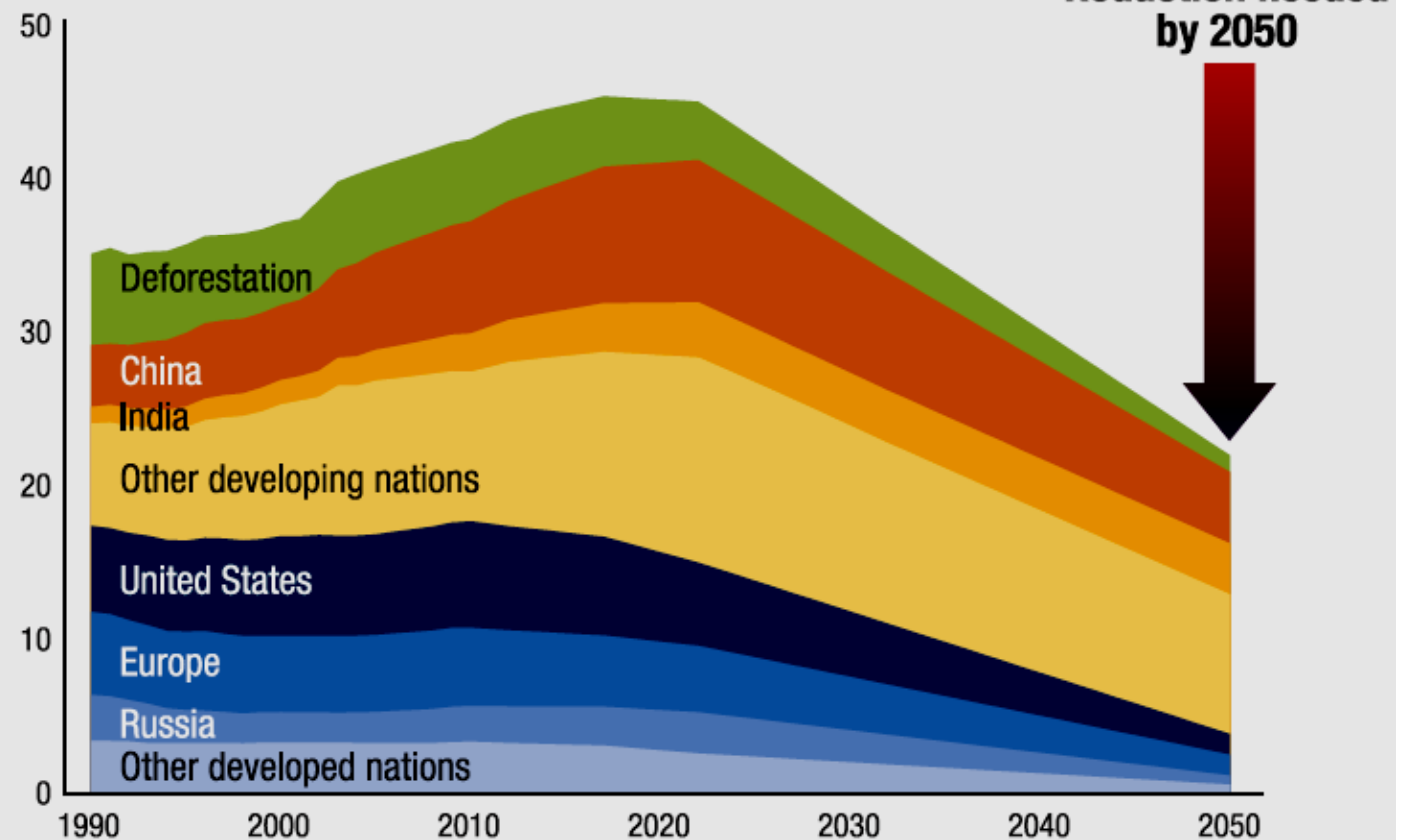


# Start with a Clear and Certain Emissions Limit

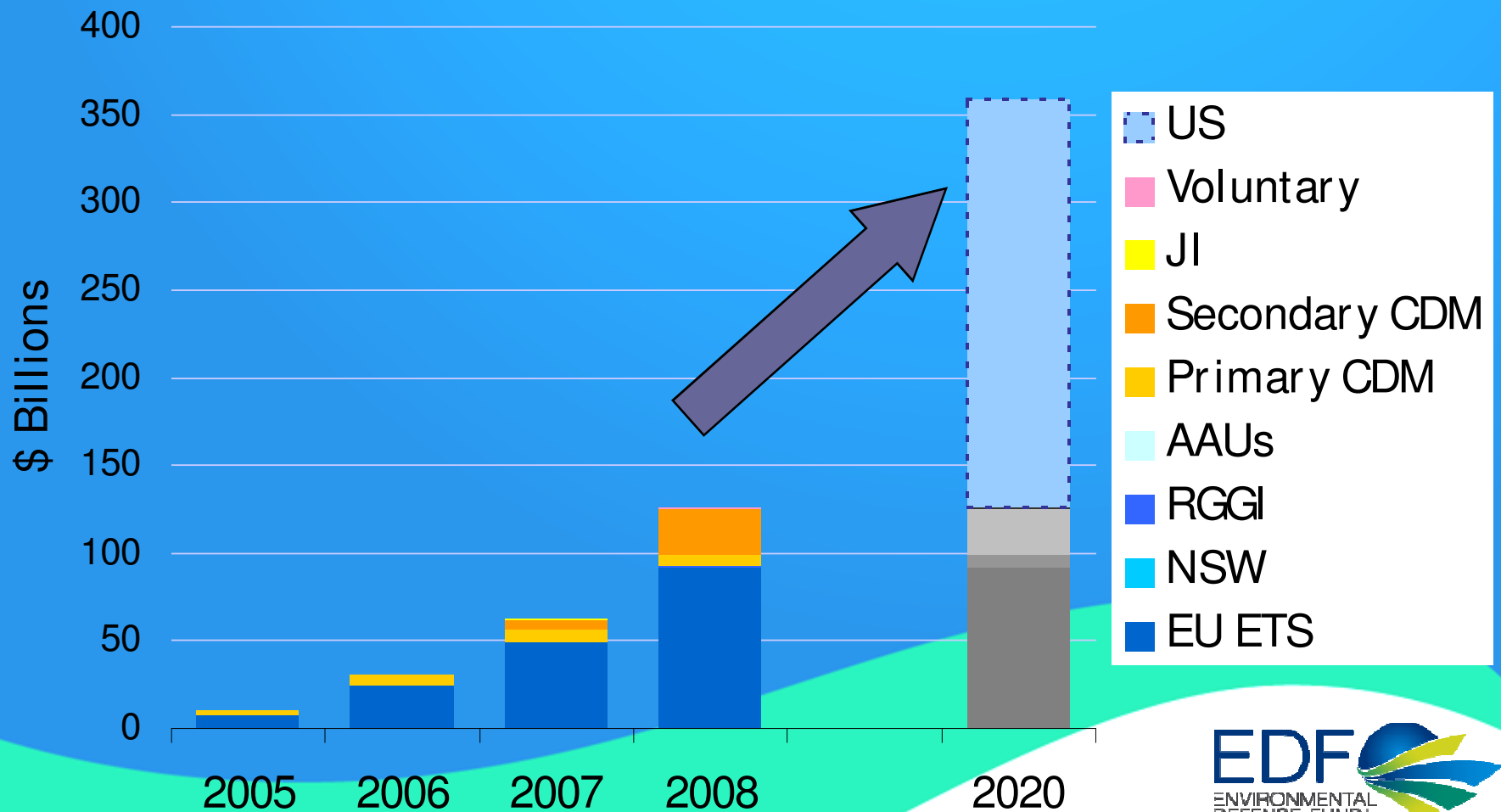
- Declining cap
  - Creates scarcity
  - Inspires innovation
- Largest new market of our generation

## Driving down global warming pollution

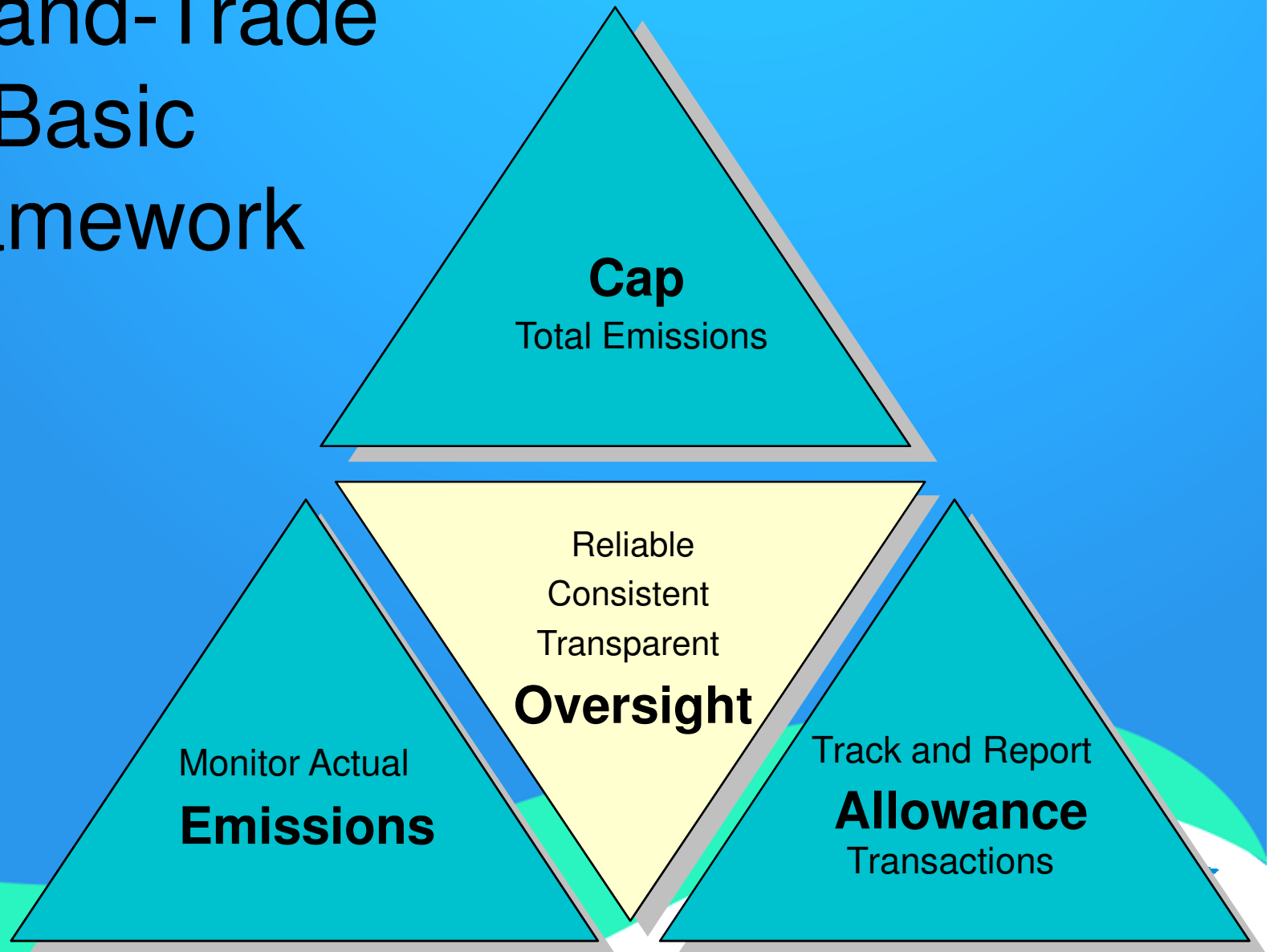
Greenhouse gas emissions  
(gigatons of CO<sub>2</sub> equivalent per year)



# Carbon market is growing strongly



# Cap-and-Trade Basic Framework



# Cap is a Clear and Certain Emissions Limit

- Mandatory Limit = **Cap**
- Cap declines over time
- Cap cannot be exceeded
- Declining cap guarantees
  - Emissions reductions
  - Meeting AB32 requirements
  - Inspiring innovation



# Allowances

- Cap divided up into allowances
- One ton GHG emissions is one allowance
- Must surrender allowances to emit

# Tradable Allowances

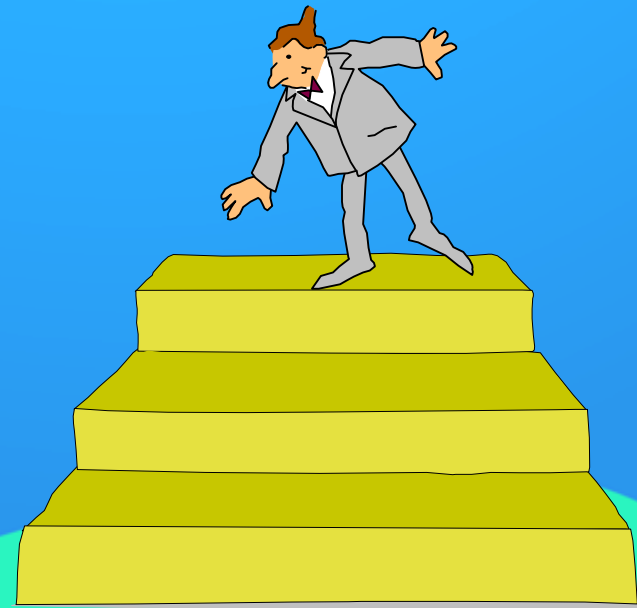
- Polluter pays: No avoiding reductions
- AB32 calls for “maximizing reductions in most cost-effective manner”
- Tradability
  - Creates innovation incentive to “over comply”
  - Enables full use of low-cost options

# Enforcement

- Monitor actual emissions
- Monitor allowance transactions
- Account for all allowances
- Ensure that actual emissions are equal to allowances surrendered
- If emissions great than allowances, then stiff, mandatory **penalties**

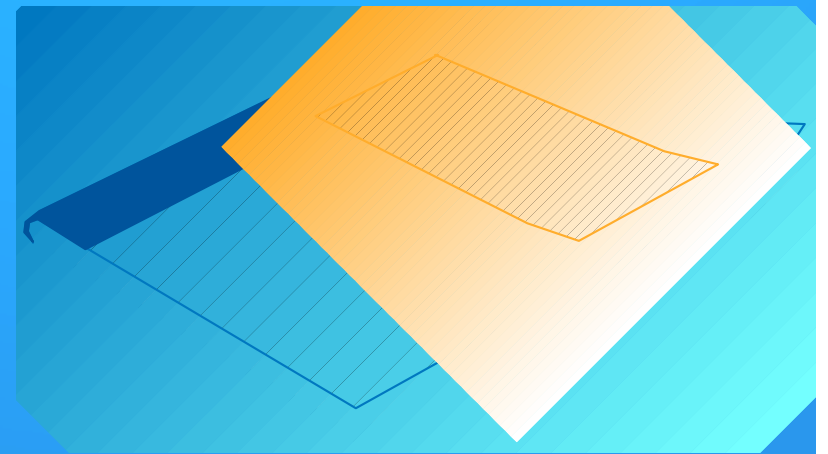
# Building Blocks of Reliable Enforcement

- Measurement
- Exchangeability
- Accountability
- Transparency
- Consistency



# Transparency and Reporting

- Public accountability builds confidence and trust
- Transparency promotes investor search for quality
- Business confidentiality can be respected too



# Role of Offset Credits

- Offsets invite close scrutiny
- Offsets may be useful if
  - High measurability & clear standards
  - Multiple environmental benefits
  - Offsets fit overall priorities – including and especially Environmental Justice

# Candidates for Offsets

- Sources not covered by mandatory emissions caps (e.g., agriculture)
- Sources covered by caps, but for which reductions arise indirectly (e.g., energy efficiency improvements by electricity customers; low-carbon biofuels...)
- Difficult to get at...but lots of opportunities for innovation

# Offset Credit Issues

- Baselines
- Additionality
- Leakage
- Permanence
- Encouraging participation
- Avoiding double-counting

# International Carbon Market Linkages

- What are California's Priorities?
  - Broader markets for California technologies
  - Global leadership
  - Stimulating action by other nations
  - Reducing costs
  - Responding to environmental justice concerns globally
  - Other.....

# International Carbon Market Linkages

- Legal Issues
  - EU-ETS requirements
  - California state law
  - US Constitution (Compacts Clause)
  - Linkage to Post-2012 Frameworks

# Cap and Trade: The Business Case

- Provides clear measures of success
- Spurs new technologies and innovation
- Promotes early compliance
- Incentivizes low-cost solutions
- Incentives to meet and surpass environmental goals
- Provides public accountability

# Cap and Trade: The Innovation Case

- Drives investment in a relentless search for better, cheaper, faster ways of cutting emissions
- The broader the market, the greater the scope for new technologies and processes
- Global carbon market in 2007 topped \$60 billion (for comparison: this is 10 times larger than the value of the US wheat crop)

Data source: The World Bank



# Carbon Markets: A Cornucopia of Innovation

- Kyoto Protocol's Clean Development Mechanism has over 1200 projects in process, covering renewable energy, improved energy distribution and demand side management, construction, transportation, reduced solvent use, waste processing, agriculture, afforestation and reforestation, among others
- Diversified project portfolios
  - Example: EcoSecurities has GHG reduction projects in over 25 countries on five continents using more than 20 different technologies

Data source: The World Bank



# Economic Benefits of Scoping Plan Measures in 2020

- **Small** Impact on statewide growth
- Likely **positive**

California's Economy is Forecasted to Grow Dramatically

