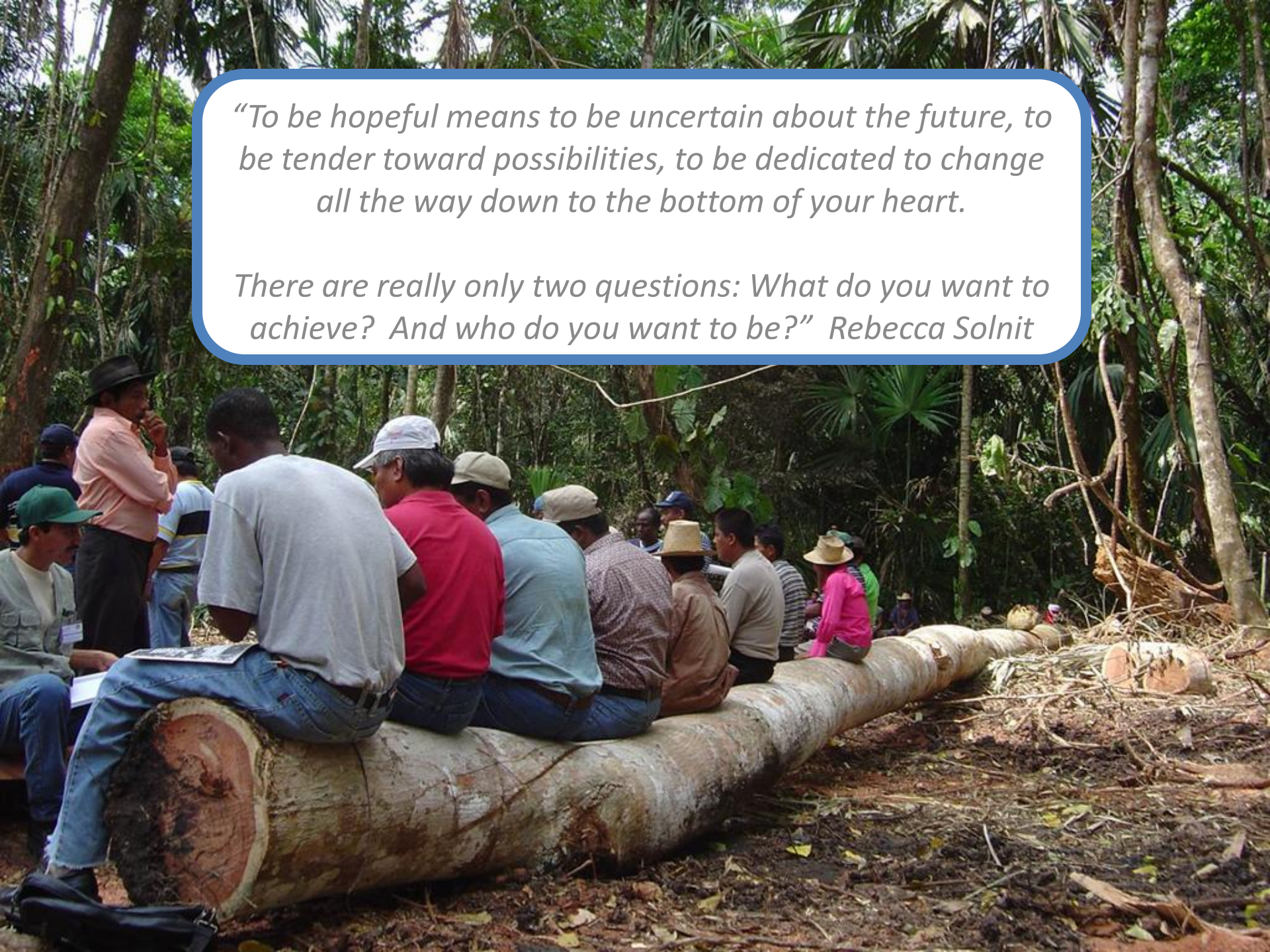


“To be hopeful means to be uncertain about the future, to be tender toward possibilities, to be dedicated to change all the way down to the bottom of your heart.

There are really only two questions: What do you want to achieve? And who do you want to be?” Rebecca Solnit





ClearSky
Climate Solutions
for our shared future



1. Carbon Project Development
2. Climate Consulting for Organizations and Businesses
3. Offsets for Individuals, Organizations and Businesses



Understanding Carbon Offsets: Topics for Today



- Individual carbon accounting (carbon footprinting)
- Visualization of atmospheric carbon
- Introduction to carbon offsets
- Cap and trade, regulatory market vs. voluntary market
- Carbon offset project examples and decisions for purchase

Carbon Footprints

- Calculator results?
- Measure → Reduce → Balance

Carbon Visualization

- How do we translate an abstract set of data into a visual representation?

How much CO₂ is created by...

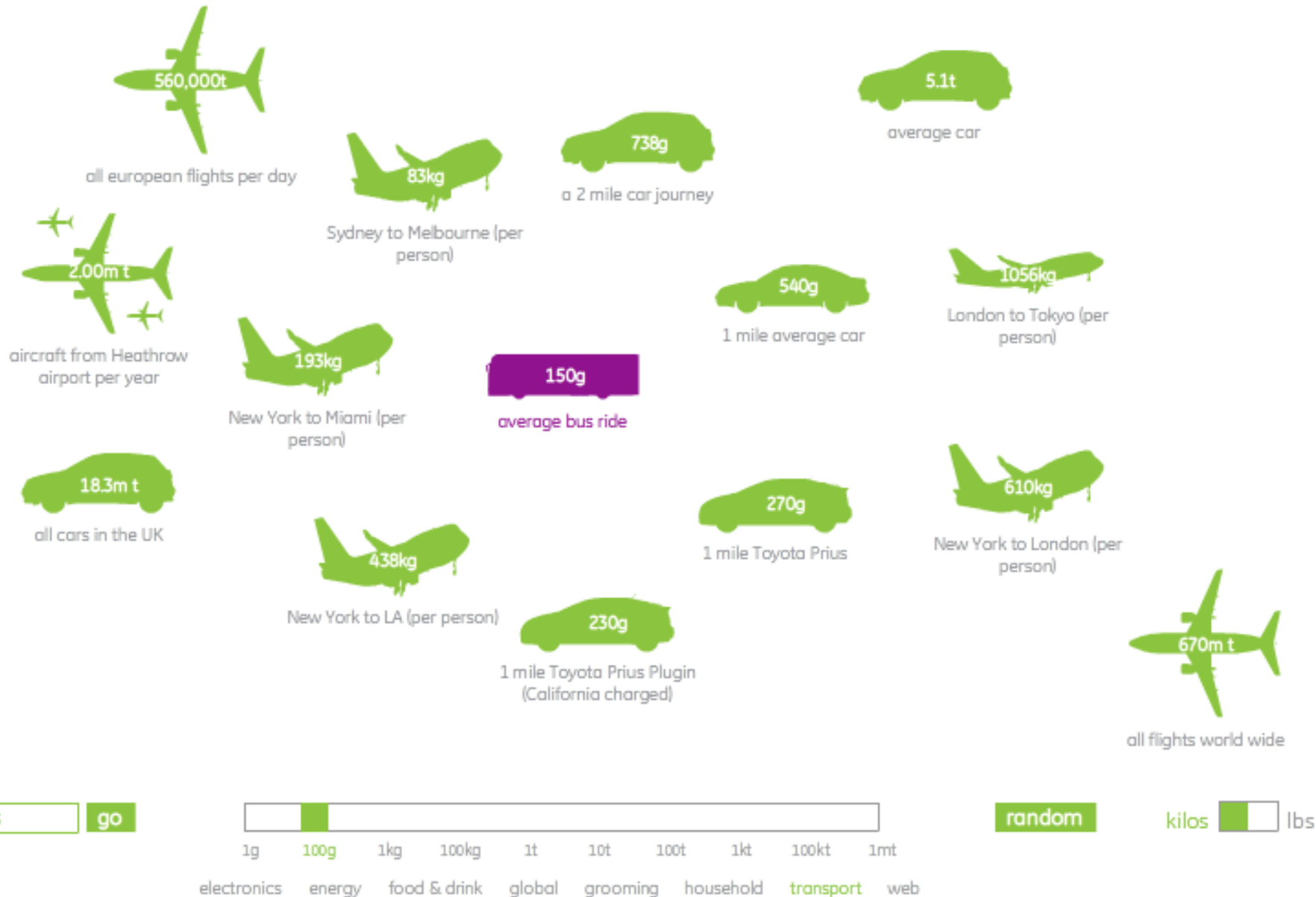


enter CO₂ tons



kilos lbs

How much CO₂ is created by...

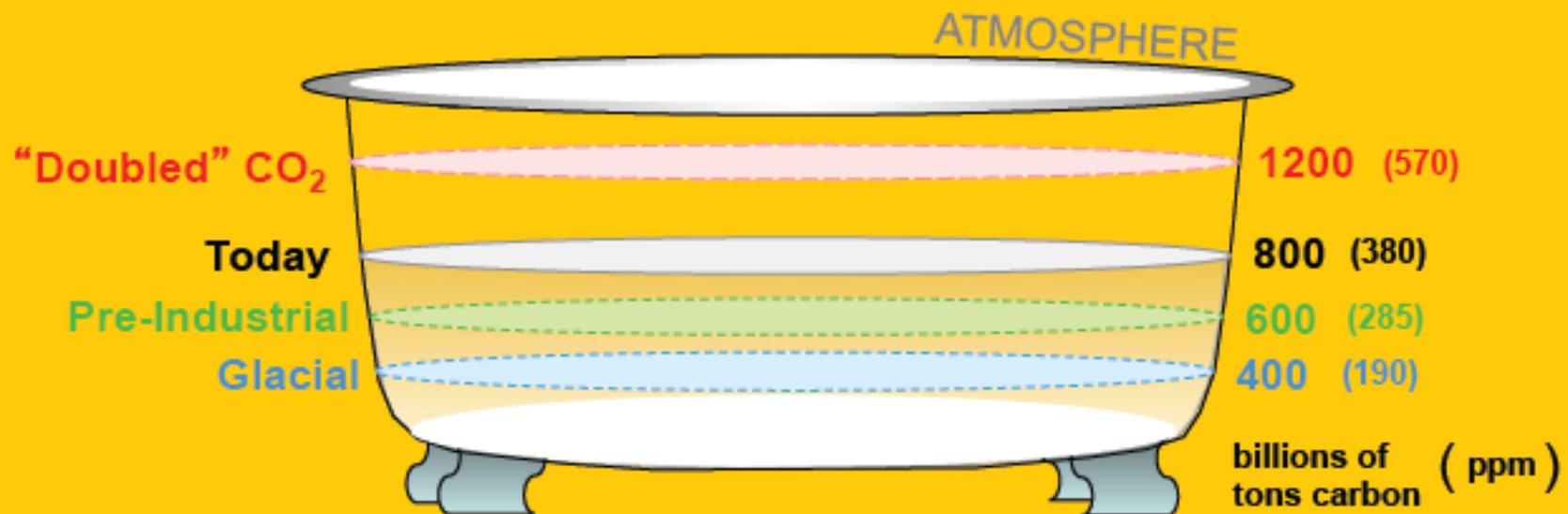


CO₂ or CO₂-equivalent emissions figures from public and media sources using different methodologies. See "about this data" section on ge.com/visualization/CO2 for more.

These figures are for illustrative purposes only and haven't been verified by GE. Don't use as a guide unless otherwise stated.







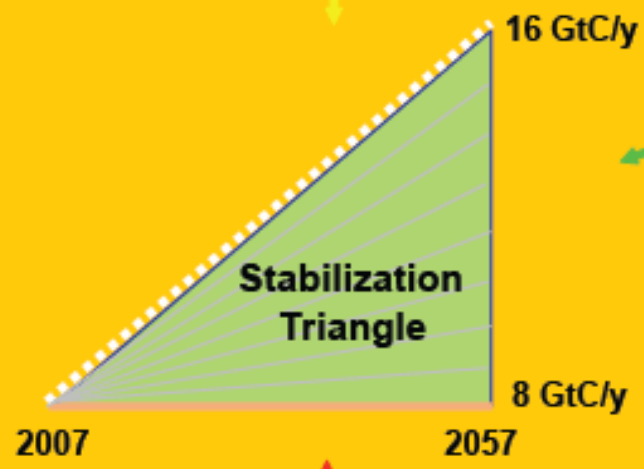
15 Wedge Strategies in 4 Categories

Energy Efficiency & Conservation (4)



Fuel Switching (1)

CO₂ Capture & Storage (3)



Stabilization Triangle

2007

2057

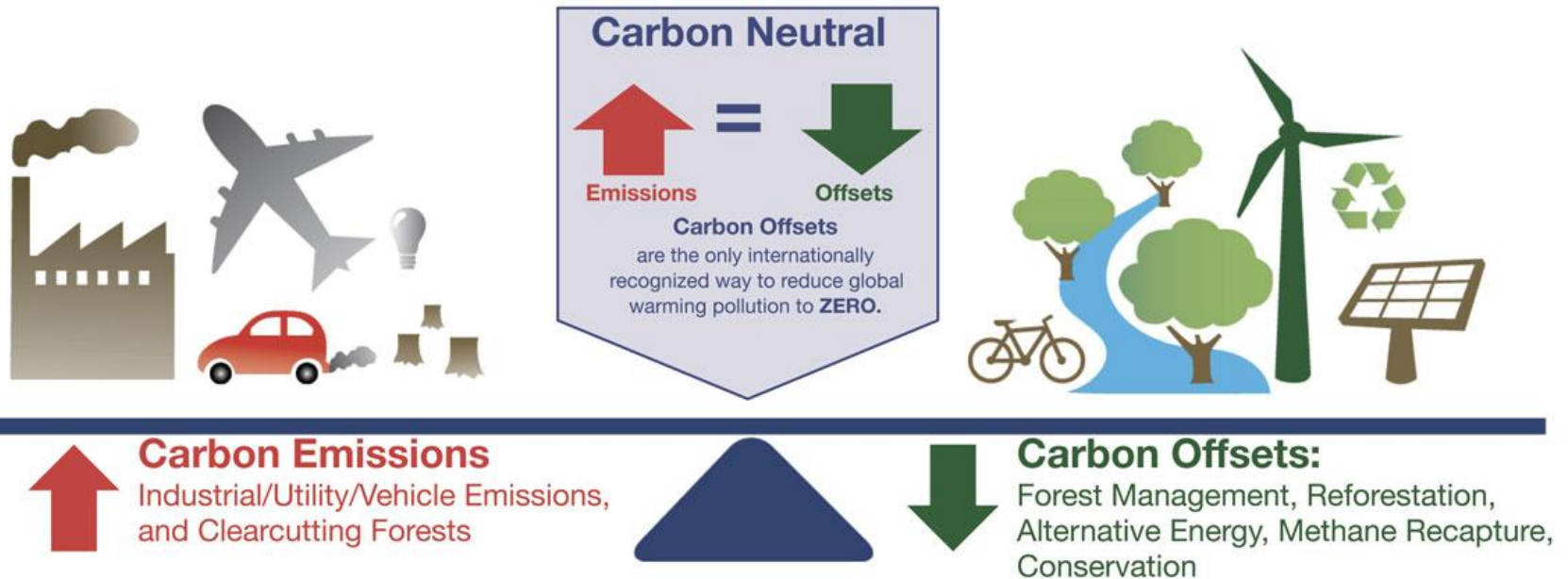
Nuclear Fission (1)



Renewable Fuels & Electricity (4)

Forest and Soil Storage (2)

Carbon Offsets



- A carbon offset is **one metric ton** of carbon dioxide equivalent (CO_{2e}) that is **taken out** of the atmosphere and sequestered, or one metric ton of CO_{2e} that is **not emitted** to the atmosphere.

Market-based solutions

- Place a value on something that was previously un-valued, and market interests will respond
- What would you pay for clean air, preservation of natural ecosystems, stable coastlines, etc.?



Carbon Offset Standards

Voluntary

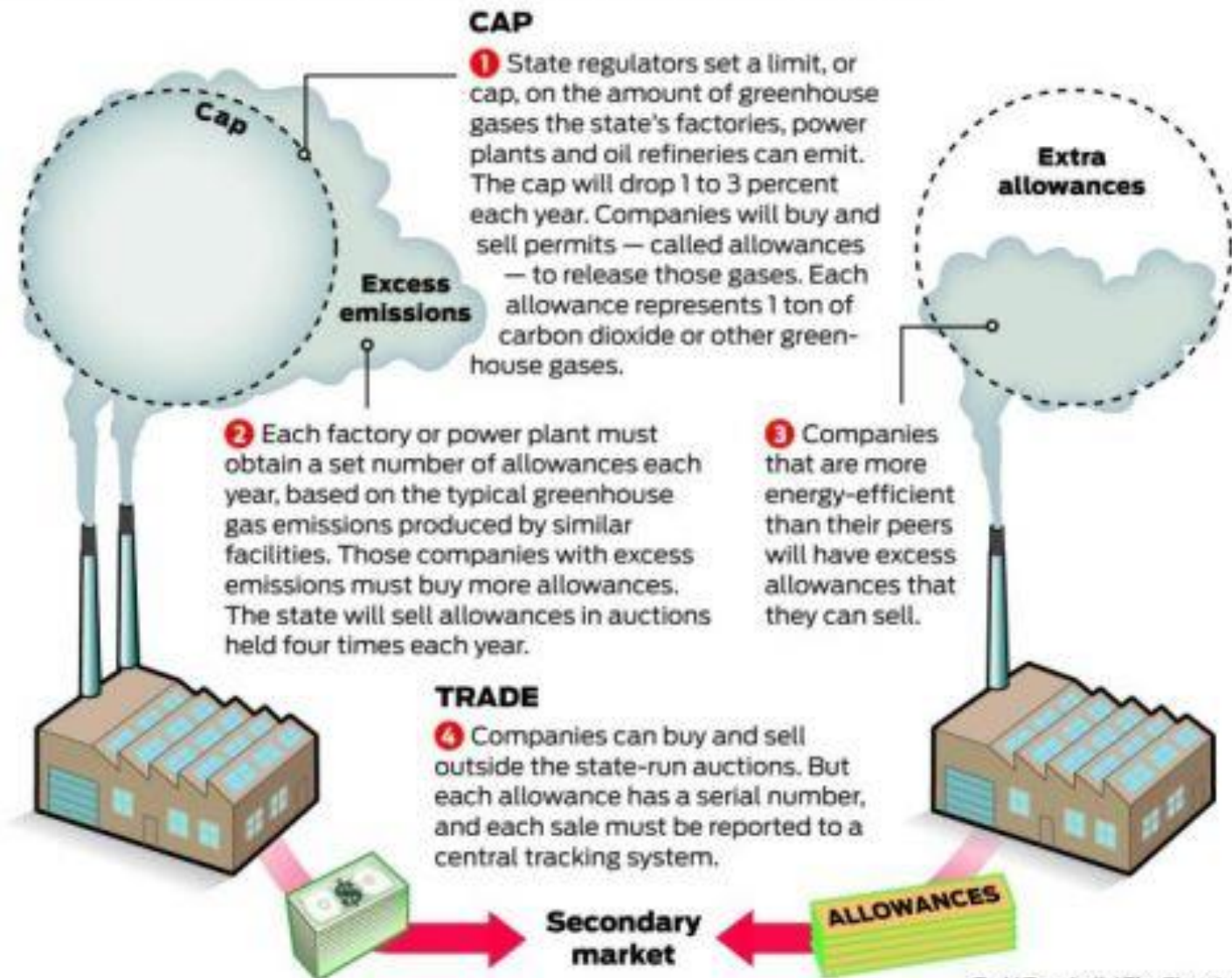


Regulatory



Inside California's cap-and-trade system

Cap-and-trade systems use market forces to cut pollution. On Wednesday, California will launch America's first large-scale cap-and-trade market to control the greenhouse gases that cause global warming. If it works, it could one day become a model for the rest of the nation.



Carbon Offset

One Metric Ton of CO2 Equivalent

A High Quality Carbon Offset Can Demonstrate

- 
- Real
 - Additional
 - Permanent
 - Leakage
 - Verified
 - Certified (Registered)
 - Ancillary Benefits

- Price
- Country of origin
- Vintage
- Timing of delivery

Example of a Carbon Offset Project

Panama Reforestation Project

- Re-planting native rainforest trees on degraded land
- High biodiversity benefits
- Positive social impacts
- Certified carbon offsets



Baseline Land Use Activities



Nursery to Plantation



Forest Establishment



- 10 months old

Forest Establishment



- 9 years old



Biodiversity



- Ocelots returned to the forest after 7 years.
- Spider monkeys back in the forest after 9 years

Example of a Carbon Offset Project

Huls Dairy Methane Capture and Energy Generation

- Capture and reduce methane to carbon dioxide
- Combines this combustion with energy generation
- Local dairy saving money and creating new products
- Certified carbon offsets and RECs





Carbon Offset Exercise



Questions?

The job is to make the impossible, possible.

Your solution can be found in what you read in your spare time?

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Cap

Total cap = **100** tons CO₂e

20 A



30 A



30 A



20 A



Year 1

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Cap

Total cap = **96** tons CO₂e

19 A



29 A



29 A



19 A



Year 2

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Cap and Trade: Allowances

Total cap = **100** tons CO₂e

20 A

30 A

30 A

20 A



20



30



20



30

= 100

Cap and Trade: Allowances

Total cap = **100** tons CO₂e

20 A

30 A

30 A

10 A

20 A



20



30



20



30

= 100

Cap and Trade: Offsets



5 Offsets

Total cap = **100** tonnes CO₂e

20 A

30 A

30 A

5 A

20 A



20



30



20



30

= 100