Mitigation and Adaptation

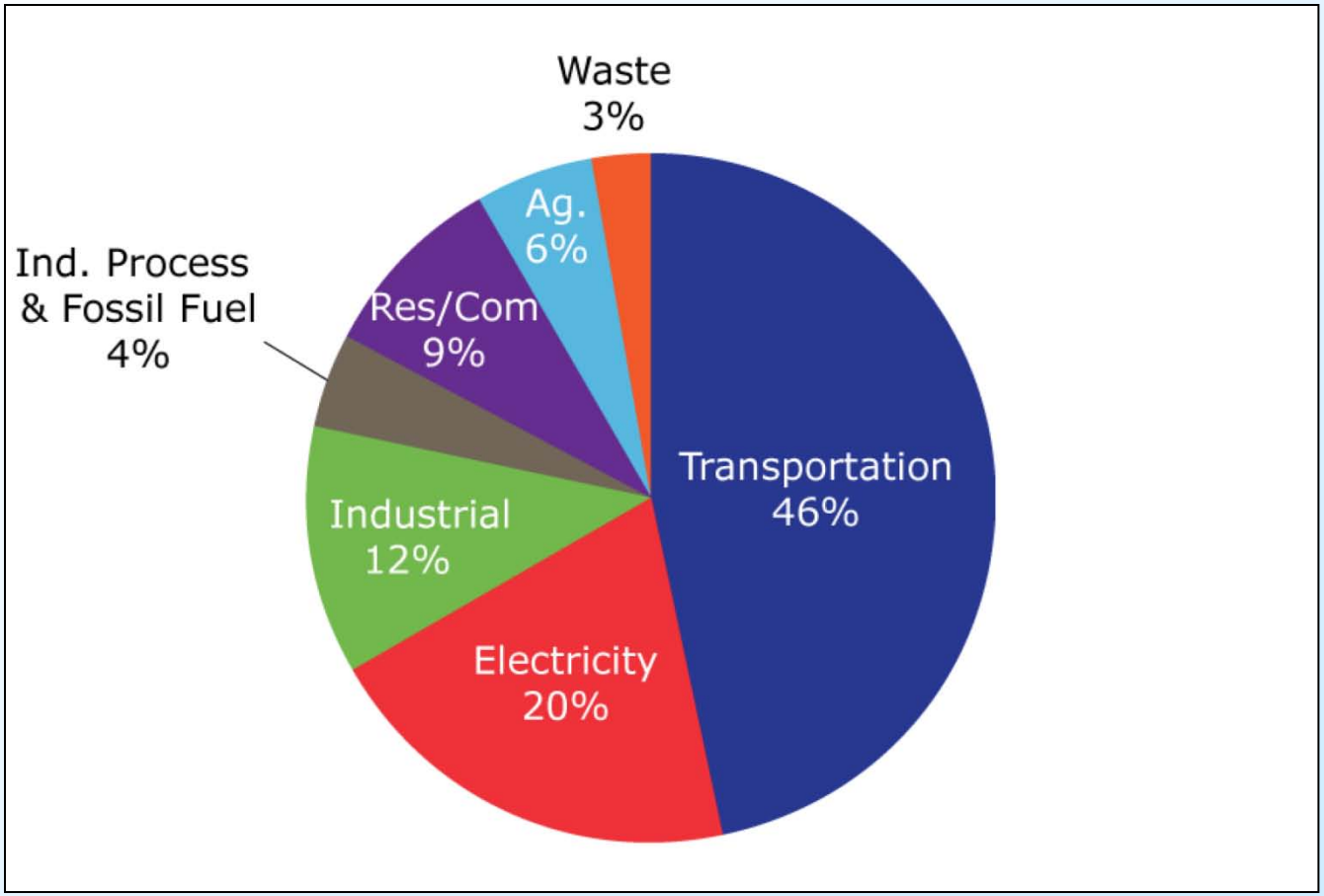
DNR Speaker Series

June 9, 2010

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

Washington's 2005 greenhouse gas emissions



DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

Where we've been

- Tension between
  - Reducing emissions
  - Preparing for changes
- No limits on greenhouse gas emissions
- Full cost of fossil fuels not reflected in price of goods and services
    - In economic terms, called an "externality"
- Some economists call climate change "*the greatest market failure in history.*"

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

Where we are today

- Uncertainty around emission limits felt throughout the economy
- Impacts of a changing climate becoming real
- EPA's "Endangerment finding"
- National GHG tailpipe standards
- Emission standards for some largest emitters in 2011
- Congressional proposals aplenty

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

Where we are headed

- Low carbon economy
- Restricted emissions
  - Avoiding the worst climate change impacts
- Adopting policies that encourage
  - Development of clean and renewable energy
  - Investment in jobs and infrastructure to support the economic transition
  - Assistance to those hit hardest by rapidly changing climate
  - Preparing for those impacts we cannot avoid

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

How we'll get there

- Climate Action Team (CAT) proposals
  - Energy efficiency and green buildings
  - Transportation
  - Improve waste reduction and recycling
  - Incorporate climate change into SEPA
- Similar federal proposals
- Pricing greenhouse gas emissions
- Adopting policies where price signal doesn't work

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

Pricing GHG Emissions

- Two main options
  - Tax
  - Cap and Trade
- Tax: price is certain, emission reductions are not
- Cap and Trade: reductions are certain; market sets the price

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

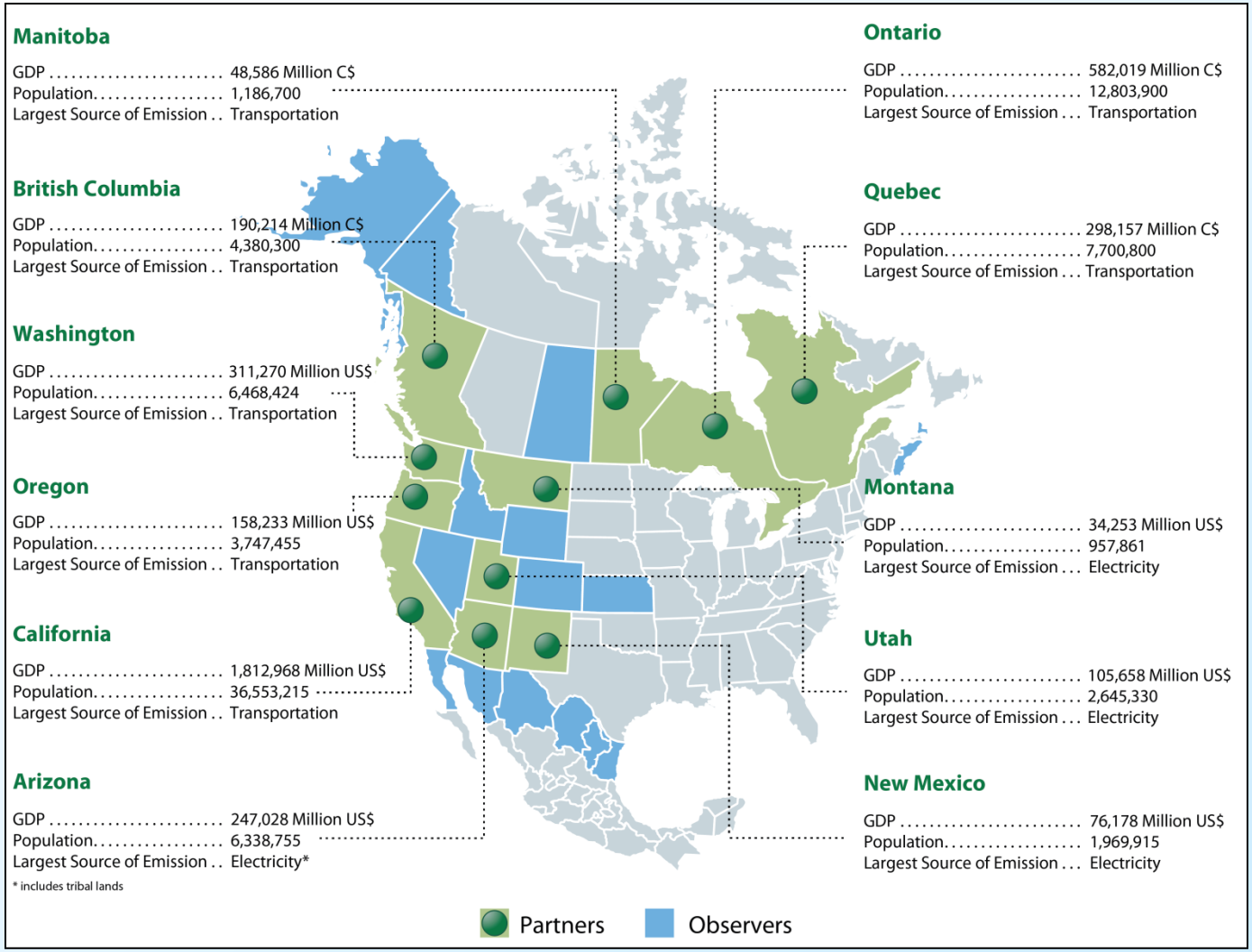
Western Climate Initiative

- Signed in 2007
- Joint work to:
  - Promote clean and renewable energy in the region
  - Increase energy efficiency
  - Advocate for regional and national climate policies that are in the interest of western states
  - Identify measures to adapt to climate change impact
- Three specific directives:
  - Set a regional emissions reduction goal
  - Join a multi-state registry to track, manage and credit reductions
  - *Design a regional multi-sector market-based mechanism, i.e. Cap and trade…*

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

WCI Partners and Observers



DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

Cap-and-Trade Basics

- A government authority must determine
  - What emissions will be included
  - The limit on the total amount of emissions (cap) each year
  - Distribution of allowances - permits to emit - for free or by auction
  - Who can participate in the auction, if any
  - If free distribution, the basis for distributing
  - Rules for offset projects

- Number of allowances *decline each year*, creating demand
- They can be bought and sold --- traded
- Emitters reduce emissions, purchase allowances from others, or fund projects outside capped sectors that reduce emissions - offsets

DEPARTMENT OF ECOLOGY State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

Cap-and-Trade as Musical Chairs

An Illustration of Managed Scarcity

Each chair represents one permit or "allowance"

If you have a permit, you get a chair

Based on work by Holmes Hummel, PhD
Fellow for Congressman Jay Inslee
November 21, 2007

The game begins

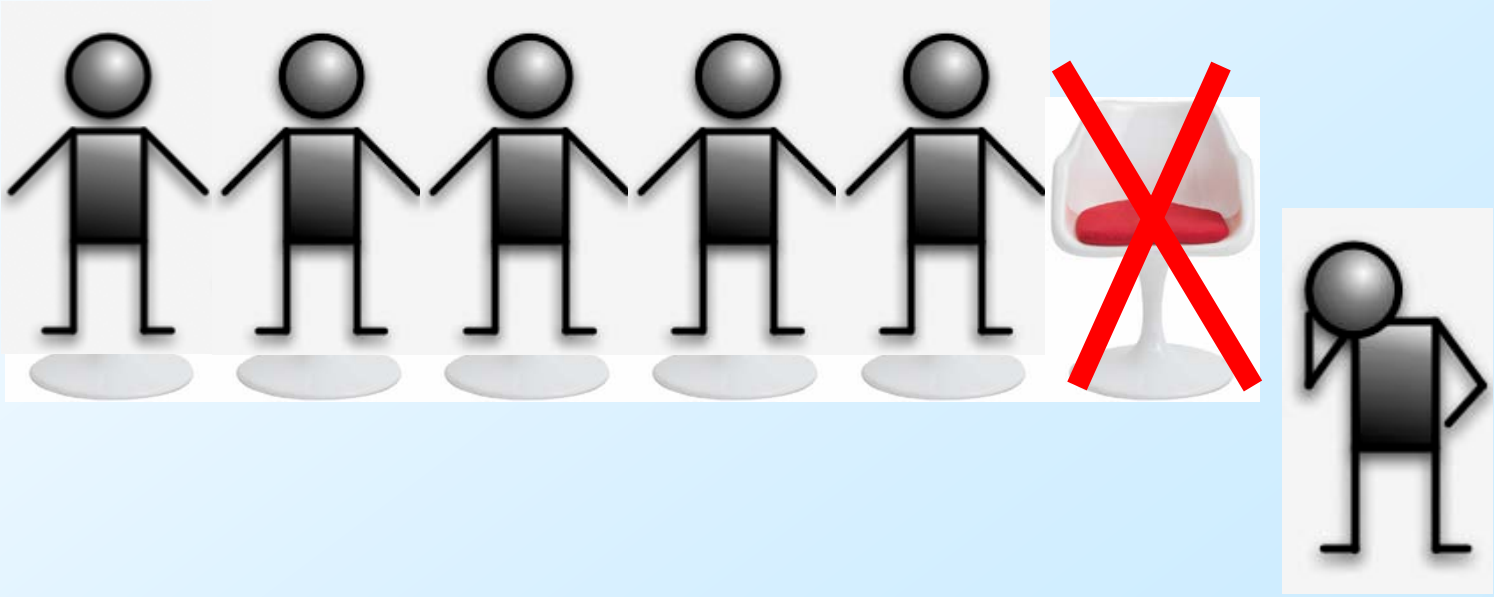
At the start, everyone has a seat – because there are no limits on carbon emissions.

All stick figures by Tormod Lund, GraffleTopia.com

The Cap

In the second year, the cap starts to decline

The number of allowances also decline

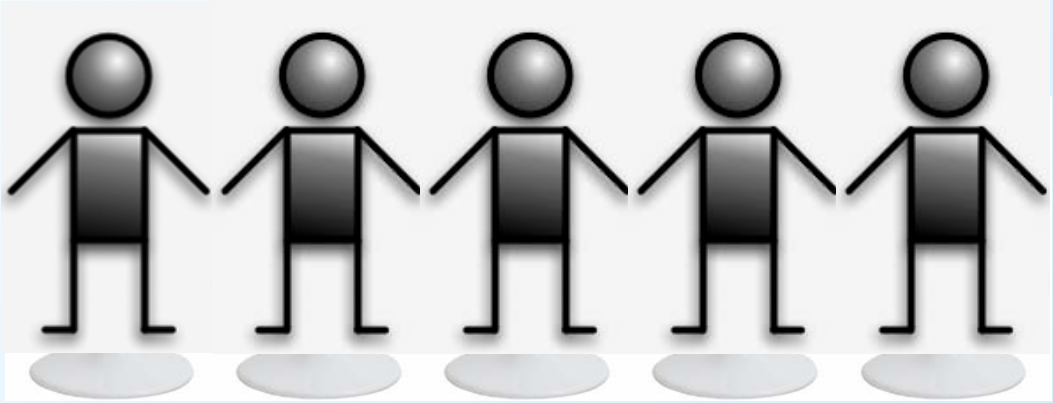


DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

The Trade

Would anyone be willing to sell their chair for $10?



DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT

The Innovation

Sure! For that price, I can finance an efficiency upgrade, eliminating my need for a pollution permit.

The Market

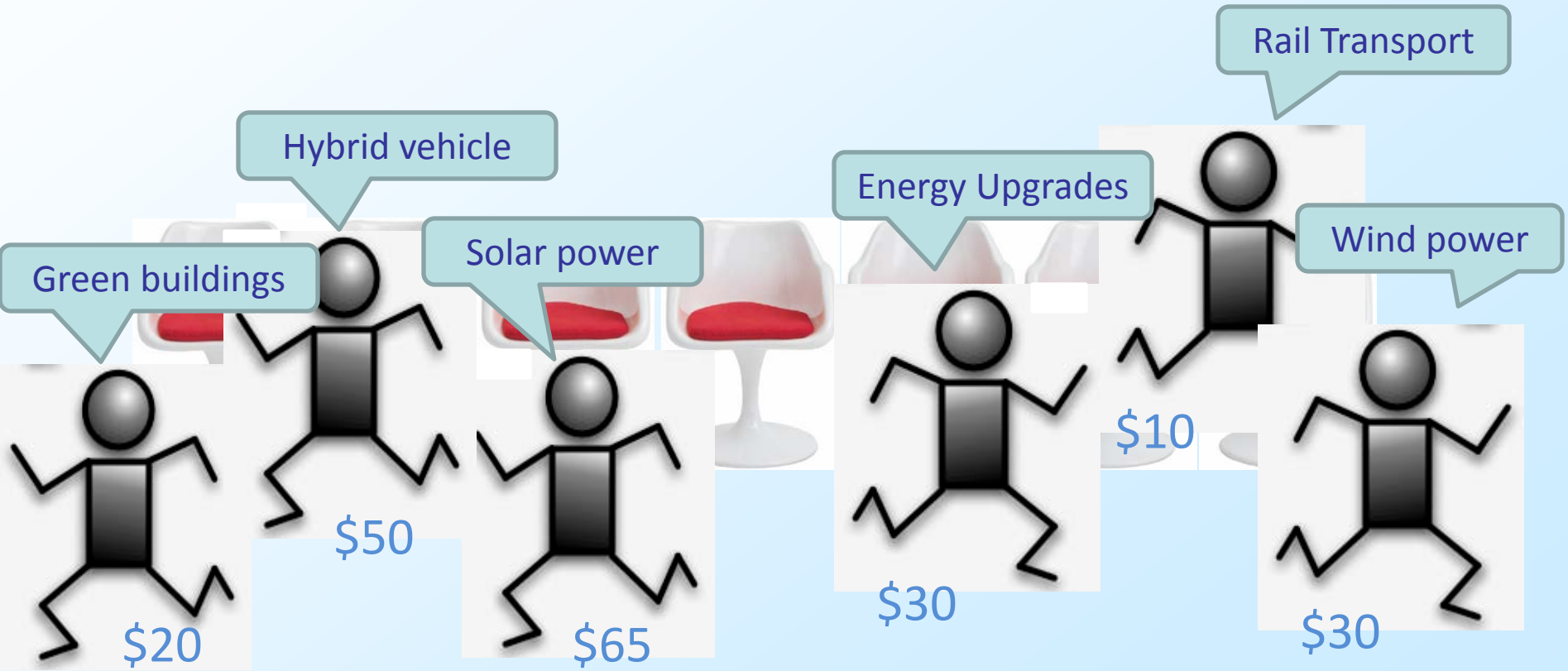
- As cap tightens in each new round, fewer allowances are available,
- Allowance prices increase to reflect real cost of greenhouse gas emissions on the economy
- Low carbon reduction strategies become economical

SELL PRICE: $20 $20 $20

Achieving Reduction Targets

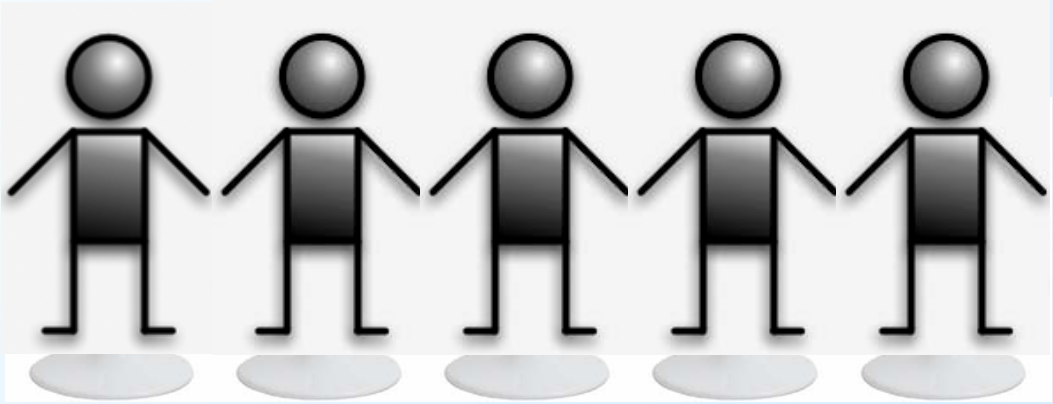
Cap-and-trade lets players choose at what price they will reduce their emissions

–and how they want to reduce them



Using Market Incentives

- For some, it's more profitable to reduce emissions and sell allowances to those who can't reduce or for whom it's more expensive
- Offsets also help capped facilities reduce at a lower cost
- Profit is a main driver for innovation and investment; need both



Achieving Reduction Targets

Purpose is to reduce greenhouse gas emissions

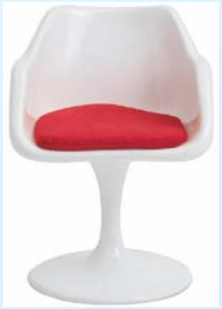
Number of allowances available is reduced each year until the ultimate target has been achieved

The End Game

The last players

- can afford to pay
- have the least flexibility to reduce

These are the most valuable/needed uses of fossil fuels



www.ecy.wa.gov/climatechange/index.html