Washington’s 2005 greenhouse gas emissions

- Transportation: 46%
- Electricity: 20%
- Industrial: 12%
- Res/Com: 9%
- Ag: 6%
- Waste: 3%
- Ind. Process & Fossil Fuel: 4%

www.ecy.wa.gov
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.”
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
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
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
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
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…*
WCI Partners and Observers

**Manitoba**
- GDP: 48,586 Million C$  
- Population: 1,186,700  
- Largest Source of Emission: Transportation

**British Columbia**
- GDP: 190,214 Million C$  
- Population: 4,380,300  
- Largest Source of Emission: Transportation

**Washington**
- GDP: 311,270 Million US$  
- Population: 6,468,424  
- Largest Source of Emission: Transportation

**Oregon**
- GDP: 158,233 Million US$  
- Population: 3,747,455  
- Largest Source of Emission: Transportation

**California**
- GDP: 1,812,968 Million US$  
- Population: 36,553,215  
- Largest Source of Emission: Transportation

**Arizona**
- GDP: 247,028 Million US$  
- Population: 6,338,755  
- Largest Source of Emission: Electricity

**Ontario**
- GDP: 582,019 Million C$  
- Population: 12,803,900  
- Largest Source of Emission: Transportation

**Quebec**
- GDP: 298,157 Million C$  
- Population: 7,700,800  
- Largest Source of Emission: Transportation

**Montana**
- GDP: 34,253 Million US$  
- Population: 957,861  
- Largest Source of Emission: Electricity

**Utah**
- GDP: 105,658 Million US$  
- Population: 2,645,330  
- Largest Source of Emission: Electricity

**New Mexico**
- GDP: 76,178 Million US$  
- Population: 1,969,915  
- Largest Source of Emission: Electricity

* includes tribal lands

- Partners
- Observers
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
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.
In the second year, the *cap* starts to decline

The number of allowances also decline
Would anyone be willing to sell their chair for $10?
Sure! For that price, I can finance an efficiency upgrade, eliminating my need for a pollution permit.
• 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—\textit{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
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