PUTTING THE REAL PRICE ON IT

Accounting for the cost of pollution
Where is Washington now?
Washington's emissions: Then, Now, and in 2050

- **1990**: 88.4 million tons of CO2e
- **2000**: 108.6 million tons of CO2e, +10.3%
- **2017**: 97.5 million tons of CO2e
- **2050 (RCW 19.235)**: 4.42 million tons of CO2e, -95.5%
- **2050 (DDP Study)**: 17.68 million tons of CO2e, -81.9%
We’re not on track
The Low Carbon Pathway
The Low Carbon Pathway: How do we get there?

- Business as usual: 50.49%
- Reductions necessary: 89.99%
- Business as usual: 48.21%
- Reductions necessary: 92.56%
- Business as usual: 14.42%
- Reductions necessary: 96.33%
- Business as usual: -0.73%
- Reductions necessary: 67.21%
- Business as usual: -19.3%
- Reductions necessary: 99.6%

### Energy Sources

- **Electricity**
- **Pipeline Gas**
- **Jet Fuel**
- **Diesel Fuel**
- **Gasoline Fuel**
- **Steam**
- **Other**
How does making pollution more expensive reduce carbon?
Imagine a company (or an economy) that emits 100 tons/CO2e/year. It commissions an analysis seeing how much each ton would cost to reduce. The result is a **marginal abatement cost curve** that lays out all the costs for each ton, from cheapest to most expensive.
No carbon pricing

Some of the emission reductions are **investments that pay for themselves** as companies discover new measures that cost negative amounts of money—**they save money**. This happens all the time through measures like efficiency and is the reason that companies invest in improved facilities and equipment today.

“Our company wants to minimize costs, so with no policy requirements it eliminates 40 tons of CO2e.”
accelerating the transition
to our clean energy future
climate
solutions

“Our company likes to minimize its costs, so it reduces those emissions that cost less than the $100 carbon fee.”

$100 carbon fee introduced

Now the state imposes a $100/ton carbon price. A certain number of emissions cost less than that to reduce and so companies make investments where the cost of reduction is less than the cost of paying the price.

Result: Cut 20 tons of additional CO2e (60 tons total)
“Our company wants to further reduce costs and these state incentives mean we can reduce CO2e and save money.”

$100 carbon fee + $50 state incentives

With all the money it’s raising from the carbon price, the state decides to pay companies an additional amount equal to $50/ton to reduce even further. Companies can make more investments that state funds have now made more affordable.
"Our company went from 100 tons/CO2e/year to 29 tons/CO2e/year."

29 tons left

Companies can spend more to reduce even further, but that would cost more than just paying the carbon price (of $100/ton).

Yellow = Emissions that are left and the company continues to pay to emit them.

At 29 tons at $100/ton = $2,900/year
accelerating the transition to our clean energy future
climate solutions

The opportunity for jobs
Carbon pricing, depending on some policy choices, is likely to produce $1.2-2.4 billion/biennium

“Our company went from 100 tons/CO2e/year to 29 tons/CO2e/year.”

Yellow = Emissions that are left and the company continues to pay to emit them.

Green = Investments resulting from state directed funds that can be spent on carbon reduction infrastructure—new equipment at facilities, transit projects, clean energy and much more.

Orange = New spending and investments in capital infrastructure that would not have happened without a carbon price.
2 approaches: carbon tax/fee and cap/invest
Carbon Tax/Fee basics

By setting and then gradually increasing the price, the orange section continues to grow—more investments become cost-effective. Money raised can be spent multiple ways (true of all carbon pricing systems): Tax cuts or dividends returned to the people (I-732) or investments into further reductions (green wedge).
What are the benefits of a carbon tax/fee?

- Much less complicated than cap & invest.
- More predictable for entities that are required to comply—greenhouse gas emitters.
- Simplicity means it’s less open to being gamed and eliminates participation of the financial industry and others.
- Somewhat more predictable revenue generation than cap & invest.
What are the concerns of a carbon tax/fee?

**Much less complicated than cap & invest.**

**More predictable for entities that are required to comply—greenhouse gas emitters.**

**Simplicity means it’s less open to being gamed and eliminates participation of the financial industry and others.**

**Somewhat more predictable revenue generation than cap & invest.**

**Unlikely to be politically possible to set the carbon price at the level necessary to achieve reductions needed.**

**When exemptions are provided, they eliminate all reduction obligation—the rest of society must cut more than their fair share**

**Revenue is vulnerable to changes in amount of pollution. During a recession, revenue will dip.**

(The same for all carbon pricing systems.)
Cap/Invest basics

State law sets a baseline emissions level and reduction requirements to achieve goals. Every year the state issues allowances (1 allowance = 1 ton of emitted CO2e) equal to the total emissions cap. Allowances are auctioned off to covered parties and others throughout the year. Regulated entities must submit allowances equal to their covered emissions at the end of each compliance period—if an entity doesn't have an allowance, it cannot emit a ton of carbon.
Supply and demand tell us how much allowances will go for in a market. Where the supply curve for allowances meets the demand curve for allowances is where an auction will clear. **As allowance supply falls, auction prices will climb**—supply and demand—and companies must continue to invest to reduce emissions or pay higher prices for allowances.
As allowance supply falls, auction prices will climb—supply and demand—and every year, the state will offer fewer allowances, which means the supply curve shifts to the left. The result is that the intersection of supply and demand results in a higher auction settling price, increasing the likelihood of more investments to reduce. (orange)
Cap/Invest Year 3

Fewer and fewer allowances are available and fewer are sold. The state complies with the reducing cap.

$69/allowance for 9 allowances
What are the benefits of cap/invest?

A well-designed system provides emission reduction certainty: the market system will increase the price so that the orange + green wedge are big enough to reduce emissions.

Everyone is in the boat—even companies that are EITE have an obligation to reduce.

Improved emission reduction efficiency from linking, which creates larger market: WA + CA + QC, etc.

Accelerates clean energy investments and solutions faster than market forces alone.
## What are the concerns of cap/invest?

<table>
<thead>
<tr>
<th>A well-designed system provides emission reduction certainty: the market system will increase the price so that the orange + green wedge are big enough to reduce emissions</th>
<th>Everyone is in the boat— even companies that are EITE have an obligation to reduce</th>
<th>Improved emission reduction efficiency from linking, which creates larger market: WA + CA + QC, etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantially more complicated.</td>
<td>Third parties like banks can participate.</td>
<td>A poorly designed cap will end up functioning like a carbon tax, eliminating reduction certainty.</td>
</tr>
</tbody>
</table>
General concerns for carbon pricing

Carbon pricing is regressive: lower income people spend more of their money on energy than the affluent. Requires income supports and ways to mitigate impacts.

Unsteady source of revenue: because state revenue is based on how much pollution there is, economic recessions will dip revenue as emissions slow down. Could potentially create reliance on carbon pollution as a revenue source.

And/but these concerns are common to both forms of carbon pricing. The risk of unsteady revenue is probably somewhat higher for cap/invest because entities can comply through the secondary market instead of buying from the state auction.
How do we prevent unintended consequences?
Certain industries (cement, steel, paper, etc.) are vulnerable to leakage—because they usually operate in global commodity markets, if they raise prices they will not be competitive with other facilities in unregulated markets and production will shift out of state. If this happens, this will increase emissions by more than if the companies had stayed and hurts our economy.

**EITEs**

*(Energy-Intensive, Trade-Exposed)*
EITEs: Carbon tax/fee

In carbon tax/fee systems, like the one proposed in I-1631 and SB6203 (2018), EITEs receive full exemptions and have no obligations.

**Risk:** if there aren’t other emission reduction programs or requirements, EITEs don’t have to reduce and may eventually prevent achievement of carbon reduction goals.
EITEs: Cap/invest

In cap and invest, EITEs receive free allowances and must retire them just like all other entities. For emissions above the free allocation, EITEs have the same options as everyone else: Purchase allowances from auctions, purchase allowances from others reselling their allowances, reduce emissions.
What about the impacts of recent success like 100% Clean Electricity?
$50/allowance for 16 allowances

Cap/Invest alone

With no additional polices, the price alone sets the demand. Because other policies reduce emissions, they also reduce the demand for allowances. This makes compliance with the cap and trade system cheaper.
When we add policies, the cost of allowances falls. Investments in carbon reduction funded by cap and invest proceeds—RNG, upgrading boilers, EVs, and more.
$31/allowance for 12 allowances

Cap/Invest + investment + other climate policies

When we add policies, the cost of allowances falls. Investments in carbon reduction funded by cap and invest proceeds—RNG, upgrading boilers, EVs, and more—plus 2019’s Clean Energy Transition Act (100% Clean Electricity)
These complimentary policies also guarantee short term reductions from specific sectors, capturing early non-carbon benefits like air quality.

Cap/Invest + investment + policies + clean fuel standard

When we add policies, the cost of allowances falls. Investments in carbon reduction funded by cap and invest proceeds—RNG, upgrading boilers, EVs, and more—plus 2019’s Clean Energy Transition Act (CETA), plus Clean Fuel Standard, etc...
Ok, so what does this all really mean?
A global look at pricing policy

Carbon Pricing Dashboard, World Bank
https://carbonpricingdashboard.worldbank.org/map_data