

# Gas Tax

- If we set high taxes on gas like Europe:
  - Very good for the environment
  - Bad for the economy, aside from environmental impacts (Why? What decreases?)
  - Government surplus increases, since demand for gas is relatively inelastic in the short run
    - Revenue could go toward various things such as public infrastructure, education, or taxes can perhaps be cut in other industries
    - In principle, a tax could be set up that is revenue neutral. Income taxes could be lowered to exactly offset the increased revenue from gas taxes. Critics of a gas tax could argue, with some justification, that even if a gas tax was sold as something that would be revenue neutral, it might not be believable that the government would actually lower the income tax rates by that much. That is, when new taxes are added, total taxes tend to go up, not stay the same.

- World oil price will be affected, since the US has a large share of the demand in the world oil market (US consumption is about 25% of world consumption)
  - Example: If US cuts its oil consumption by 20%, the world oil demand will fall by about 5%
  - This decrease in world oil demand will decrease the world oil prices
    - Is this good or bad for the US? (Think about whether we import or export oil more)
- What if just Minnesota passed a substantial gas tax and cut consumption by 20%? Would we still get this effect?
  - No. MN is only about 1/50 of U.S., such a cut would have a negligible impact on the world oil market.
- But as we said last class, gas tax is not very popular politically

# Cap and Trade

In 2000 SO<sub>2</sub> capped at 9.5 million tons

In 2010 final cap of 8.95 tons

SO<sub>2</sub> cut by half from 1980 emission of 17.3 tons. (Many lives saved as well as trees)

For every ton emitted, need one allowance.

Average trade in 2007 was \$325 per ton.

More recently price has plummeted to under \$10.

## Cap and Trade of CO<sub>2</sub>

Europe. Legally binding caps

- Can find more information at the European Union Emissions Trading Scheme website  
[http://ec.europa.eu/environment/climat/emission/index\\_en.htm](http://ec.europa.eu/environment/climat/emission/index_en.htm)
- Go to FAQ tab for some interesting discussion about the program.
- The price has collapsed from over €22 a few years ago to €7 a ton of CO<sub>2</sub>.
- UK is moving to adding a carbon tax to power plants burning coal to offset declines in allowance price. The tax will be on the order of €20 and will rise to €40 by 2020. Key idea is to provide incentives to reduce carbon production.

## United States

- Currently no mandatory carbon allowance system
- But a voluntary system is up and running. There exists a market in carbon offsets. Pay \$10 and in return one ton CO<sub>2</sub> is offset
- Minimal gas tax
- EPA is planning to introduce command and control regulations for new power plants:  
<http://epa.gov/carbonpollutionstandard/basic.html>
- Fuel efficiency standard for automobiles
- Subsidies for clean energy technology

## Subsidies for Green Energy

- With no externalities, subsidies reduce total surplus. However, if fossil fuels have a negative externality, then if we subsidize clean energy it raises total surplus as it induces people to substitute clean energy for dirty energy.
- Politically, we are more likely to see this. Politicians can pitch this as a jobs program. Subsidizing windmills means more jobs for people who make windmills.

### Problem 1: Where's the money?

- One obvious problem with subsidies is coming up with the money to fund them in this era of budget deficits.

## Problem 2: Picking Winners and Losers

- The government won't necessarily be able to pick out the winners and losers. There is much controversy now about a solar panel company called Solyndra that received a \$535 million loan guarantee from the Obama Administration. Solyndra went into bankruptcy, so taxpayers are on the hook for this loan. Critics of subsidies point to this case as clear evidence that the government should not be in the business of giving out subsidies. Advocates of subsidies argue that this is just one failure out of a larger package of loans, and in the larger package they point to successes.

Romney quip in first debate: Obama picking “losers” (instead of winners and losers).

- One thing to think about: If a carbon tax were set at the Pigovian level, you wouldn't need to subsidize alternative energy. Entrepreneurs would have plenty of incentive to create new low-carbon technologies.

## Why is U.S. regulating SO<sub>2</sub>, but only minimally regulating CO<sub>2</sub>?

- Why is Republican platform basically saying it will undo the EPA regulations, pull back on fuel efficiency standards, top subsidizing clean energy, etc...
- But Republicans (at least 1990 variety including George H.W. Bush who signed the 1990 clean act) were on board with regulating SO<sub>2</sub>
- A key point is that the level of acid rain in the U.S. is mainly determined actions taken in the U.S. If we cut SO<sub>2</sub> emissions by half in the U.S., we cut acid rain in the U.S. by half.



CO<sub>2</sub> is different.

- Not only are the impacts further down the road, what happens with climate change depends not only on what we do, but also what other countries do. We can cut back by a half and it won't make any difference if our cutbacks are completely offset by expansions by other countries. A key difference then is that CO<sub>2</sub> is an externality at the global level in a way that SO<sub>2</sub> is not.
- For example, we can think of the people in Econland as being countries, D1 could be the U.S., D2 could be Germany. We can think of the SO<sub>2</sub> issue as just D1 keeping his own house clean. It is a private good for D1 relative to his dealings with D2. But CO<sub>2</sub> is an externality, where D1's behavior impacts D2. So we see that getting efficiency for CO<sub>2</sub> will be more of a problem.