Sightline Institute

Sightline Comments to the Western Climate Initiative's Scope Subcommittee on "Summary of Major Design Options Under Consideration"

Background on document: In January 2008, the Western Climate Initiative (WCI) released a series of documents outlining the design possibilities for a cap-and-trade program in the region. Sightline commented on many issues raised by the WCI, including, in this document, the "scope" of the program. We argue that the WCI's carbon cap should cover as many sources of emissions as possible, and that it should especially include transportation fuels, which are the region's single largest single source of emissions

Sightline Institute appreciates the opportunity to present its perspectives on the WCI's Scope Subcommittee's document, ***Summary of Major Design Options Under Consideration***, issued on January 2, 2008. Sightline's comments on this document (hereinafter described as the "Scope Options Paper") are guided by our belief that the WCI market mechanism must achieve the following core goals:

- **Effectiveness**: The WCI market mechanism should set strict and declining limits for all climate-warming emissions attributable to the WCI region. *In particular, the WCI emissions cap must apply to transportation fuels consumed in the region, which represent the largest single category of emissions from WCI member jurisdictions.*
- **Fairness:** The WCI market mechanism should not allow unwarranted windfall profits—especially by historic emitters—and must provide a fair and equitable distribution of the economic burdens of meeting emissions-reduction goals.
- **Efficiency:** To the extent possible, consistent with the other goals of the program, WCI market mechanism should minimize complexity, administrative costs, and the potential for externalities and unintended consequences.

First and foremost, *Sightline commends the subcommittee for its thorough and fair consideration* of options for the scope of a cap-and-trade program. The task facing the subcommittee is daunting, and Sightline is grateful the untiring work of subcommittee members in evaluating the myriad possibilities available in an economy-wide emissions reductions mechanism.

FEASIBILITY OF DESIGN ELEMENTS

Sightline agrees with the subcommittee's assessment that covering broad sectors of the economy, including the large majority of measurable emissions attributable to WCI jurisdictions, is feasible in the near-term. Specifically, Sightline believes that all of the sectors mentioned in Option 3, on page 3 of the Scope Options Paper, can be covered in the first round of the WCI market mechanism. Sightline echoes the consensus statement of the Western Climate Advocates Network (WeCAN) strongly supporting a scope that is at least as comprehensive as that represented by Option 3.

Most importantly, we believe that **it is entirely feasible to include transportation fuels** in the first round of the WCI market mechanism**.**

We agree with the Scope Subcommittee that the appropriate point of regulation for transportation fuels is at "choke points" in the fuel supply, well upstream from consumers and filling stations. These upstream points of regulation promote administrative simplicity and reduce the potential for evasion. At a chosen choke point, fuel handlers—either purchasers or sellers—would be required to track fuel volumes, and obtain emissions permits for the carbon that will be released when those fuels are burned.

We suggest two possible choke points for the Subcommittee's consideration: (1) petroleum refiners and importers; and (2) the "terminal rack."

(1) Under a **refiner and importer cap**, the compliance burden would fall on the region's petroleum importers and refiners to measure, and submit allowances for, the carbon content of the fuels they produce or import. A refiner-based cap could fit in with a point-source emissions tracking system for refineries; rather than tracking point-source CO2 emissions per se, a refiner could measure the carbon content of all fuels that it receives, subtract the carbon content of all non-combustible products and by-products, and submit allowances for the difference. Thus a cap that applies to oil refiners and importers offers at least one major advantage, as it would cover virtually *all* CO_2 emissions from oil, not just transportation fuels.

However, accounting for exempt product streams (such as exports from the WCI region), as well as apportioning auction revenue among states, may create technical and political complications. With a refiner cap, a system of allowance rebates, including tracking and auditing, would likely be required for petroleum products exempted from the cap. This system could operate much like the existing tax rebate structure for transportation fuels.

(2) Under a "**cap at the rack**" system, sales of liquid transportation fuels or other combustible fuel products such as home heating oil, would be tracked at the "terminal rack." The terminal rack is the facility where fuel from a refinery or pipeline is delivered to trucks, trailers or rail cars for redistribution to filling stations, consumers, and businesses. The legal owner of the fuel at the time of withdrawal from "the rack" would be required to obtain and submit allowances equal to the carbon content of the fuels they purchase.

Currently, the IRS and many states collect gasoline and diesel taxes at the terminal rack. The rack is a natural chokepoint in the fuel supply chain: virtually all highway fuels flow through the rack, and sales volumes are carefully measured by buyers and/or sellers. A "cap at the rack" system could thus piggyback on the state-level tax systems—systems that already accurately account for imports and exports, and that have careful auditing controls for fuel volumes. Moreover, importers and distributors are already accustomed to handling tax accounting and other regulatory requirements, which are quite similar to the administrative requirements of an emissions cap.

In some cases, state fuel tracking programs may need to be coordinated and harmonized, to ensure that monitoring and enforcement standards are compatible, and are sufficient to prevent "cap evasion," much as state and federal tax systems are designed to prevent tax evasion. If necessary, exceptional cases, such as Oregon, can be regulated using the existing point of taxation (delivery to retailers, in Oregon). In the event that differing points of regulation pose administrative problems, it would be possible for these exceptional jurisdictions to transition to an upstream point of regulation later in the program.

On balance, Sightline believes that a "cap at the rack" system is likely more feasible than a refiner/importer cap for near-term implementation, because of the pre-existing monitoring and enforcement infrastructure at the terminal rack. However, we believe that the WCI should explore the extent to which a refiner-based cap could simplify emissions monitoring for entities across the WCI. After all, if refiners are *already* required to track their fossil fuel consumption as point sources, it could be simpler and more efficient to spare downstream purchasers the compliance burden, by consolidating tracking and reporting requirements for petroleum products at the region's 36 fuel refineries.

We believe that an upstream cap on transportation fuels, whether on refiners/importers or "at the rack," is compatible with several different points of regulation in other sectors. Additionally, it may be possible, at least in theory, to establish two side-by-side, fully independent cap-and-trade programs—one for transportation fuels and another for other sectors—with independent emissions goals and reduction schedules. Sightline could not recommend this path, however, since it would eliminate potential economic efficiency gains from inter-sector trading.

Also, we ask the Subcommittee to note that the transportation fuel emissions tallied on table 2 differ, in some cases fairly substantially, from the tallies of greenhouse gas emissions from the transportation sector released by the Energy Information Administration (EIA), an agency of the US Department of Energy. For example, EIA figures for transportation fuel emissions in 2004 for California total 227 million metric tons, while table 2 places California's 2004 total at just 182 million metric tons. On balance, we believe transportation may represent a larger share of total WCI emissions than table 2 indicates; and, just as importantly, transportation emissions, including refinery emissions, are likely a majority or near-majority of all emissions slated for coverage under Option 3.

Sightline has prepared additional comments, in the form of questions and answers, on how and why to include transportation fuels in the WCI emissions reduction mechanism. These are appended as an attachment at the end of this document. But we would like to emphasize four crucial points that are discussed in the attachment.

(1) **A cap-and-trade system for transportation fuels *would* reduce transportation emissions, compared with business as usual.** Fuel handlers will pass on much of the market value of emissions allowances as higher prices for consumers. And the economic literature is quite clear about this: *increases in fuel price create incentives for conservation*.

There is a surprisingly persistent myth that gasoline consumption is almost wholly "inelastic"—that is, consumption does not decrease when prices increase. But extensive empirical research over many decades shows this idea to be mistaken. Like most other goods, gasoline consumption responds to changes in price. Of course, like most other goods, the elasticity of demand for energy is strongly affected by the availability of substitutes, by the volatility of prices, and by other factors.[1] But the experience of the Pacific Northwest shows that rising prices can affect gasoline

[1] Though estimates vary, most economic research shows that the "long-term" elasticity of gasoline demand is about 0.6 to 0.7 percent – that is, when gas prices rise by 10 percent, consumption declines by 6 to 7 percent, not accounting for changes in income. (There is some evidence, however, that recent consumption patterns have revealed lower elasticity.) Generally speaking, demand for gasoline becomes more elastic when prices rise and stay high for a longer period of time, and when consumers believe that prices will stay high. A good short primer on the demand elasticity of gasoline can be found at About.com, here. Another excellent source of information is Todd Litman, Transportation Elasticities, Victoria Transport Policy Institute. Extensive literature reviews of the subject include: Goodwin, P.B., "A Review of New Demand Elasticities With Special Reference To Short and Long Run Effects of Price Changes," *Journal of Transport Economics and Policy*, May 1992, pdf; Espey, Molly, "Gasoline Demand Revisited: An International Meta-analysis of Elasticities," *Energy Economics*, 1998, vol. 20, issue 3, pages 273-295, abstract; Graham D. J. and Glaister S., "The Demand for Automobile Fuel: A Survey of Elasticities," *Journal of Transport Economics and Policy*, Volume 36, Number 1, 1 January 2002 , pp. 1-25(25),

consumption; since crude oil prices bottomed out in the late 1990s, per capita gasoline consumption in Oregon, Washington, Idaho, and British Columbia has fallen by nearly ten percent, and total consumption has remained flat, despite population growth.

Rising prices create incentives for fuel conservation on many levels: they boost sales of fuel-efficient vehicles; they encourage families with two vehicles to use the more efficient one more frequently; they encourage drivers cut back on discretionary driving, or chain some trips together; and they can even help lower-carbon fuels become price-competitive with petroleum. Ultimately, higher fuel prices help encourage more efficient land use patterns, as demand grows for housing that's near stores, services, and jobs. Likewise, higher prices can create political will to encourage investment in infrastructure to support lower-carbon travel alternatives, from streetcars to sidewalks.

These adjustments may be gradual and subtle, but they are real, and their effects compound over time. What's more, auction revenue can simultaneously provide consumer relief and jumpstart complementary policies, which can also ease the burden on consumers.

(2) **For transportation fuels, it is vital that emissions <u>not</u> be given out for free to regulated firms.** The economic literature shows that upstream fuel companies can pass on virtually all of the market price of allowances to consumers. If firms get permits for free, they will raise the price of fuels—and simply pocket the money. In the transportation sector, free allocation is a recipe for unearned profit windfalls, which would raise consumer costs without providing any compensating public revenue—much as has occurred in the European emissions trading system. Were this to happen in the WCI, it would likely undermine public support for the emissions reduction program. For transportation fuels, a full auction of allowances is vital to protecting the public interest and the long-term political viability of the emissions cap.

(3) **Complementary policies, by themselves, can not *guarantee* emissions reductions.** Complementary policies such as transit improvements, low-carbon fuel standards, vehicle efficiency standards, transportation demand management, and smart growth policies will give consumers more options to deal with rising fuel costs. Complementary policies can also decrease cost impacts for consumers, by giving WCI residents low-cost, lower-carbon transportation options. Still, complementary policies by themselves can't *guarantee* that WCI will reach its targets. Only a cap on transportation fuels provides that security.

Fortunately, complementary polices and the cap can be mutually reinforcing: auction revenue can accelerate investment in research and development, among other things. Significant advances in fuels and vehicle technology, for example, are far more likely if the research can be funded aggressively. In fact, if these complementary policies are successful, the price of emissions allowances won't be very high at all; the complementary policies will do the "work" of reducing emissions, without major price signals required. However, if these complementary policies aren't successful, or aren't implemented effectively, then the cap *will* create a price signal for emissions reductions—a signal that's precisely calibrated to meet the WCI's conservation targets. Think of a transportation fuels cap as providing a pricing backstop, in case the other policies aren't effective at reducing emissions economy-wide.

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abstract; Goodwin, Phil et al., "Elasticities of Road Traffic and Fuel Consumption with Respect to Price and Income: A Review," *Transport Reviews, Vol. 24, No. 3, 275–292, May 2004*, pdf.

(4) **A transportation fuels cap is politically possible.** Recent opinion research suggests that North Americans may be far more receptive to the a transportation fuels cap than previously thought—suggesting that public may be substantially ahead of its political leadership when it comes to addressing climate change. For example, a late-2007 global poll sponsored by BBC World Service[2] revealed that large majorities of Americans are willing to support higher energy prices, particularly if revenue is directed toward alternative energy. A November 2007 poll conducted by Field Research Corporation found similar results in California, which is home to nearly three-fifths of the WCI population.[3] A December 2007 poll conducted by Mason-Dixon Polling & Research Corporation found that Montana voters were just as supportive of consumer price increases.[4] And another 2007 poll found similar results in both Seattle and in surrounding King County.[5]

OTHER COMMENTS

Concurrence with WeCAN statement

Sightline supports and endorses the statement of the WeCAN network on the Scope Options Paper.

Oil and gas operations

Sightline recommends that the Scope Committee seriously consider the statements of WeCAN and the Pembina Institute of British Columbia regarding the need and feasibility for capping emissions from oil and gas extraction and processing.

Option 5

In addition, Sightline supports further consideration and development of the concepts outlined in Option 5 of the Scope Options Paper. In many ways, Option 5 may present the lightest administrative, recordkeeping, and compliance burdens of any option under consideration. Options 5 would cover a relatively small number of fossil fuel producers and importers whose production and imports are fairly straightforward to track and identify. That said, we acknowledge that there may be administrative and accounting complications inherent in tracking fossil fuel extraction, imports, and exports, as well as accounting for exempt products, such as chemical feedstocks, lubricants, and asphalts. Further, we would urge that, if Option 5 is pursued, that an

[2] This poll was conducted by GlobeScan/Program. For more information please see the website for Center for American Progress, *www.americanprogress.org/issues/2007/11/snapshot_sacrifice.html*.

[3] *61 percent favored the requirements if the new rules increased the cost of goods and services*. Asked about a carbon tax, Californians initially like the idea (72 percent support)… 53 percent said they would remain supportive if the tax increased costs for consumers… imposing a carbon tax on individuals is narrowly favored 52 percent to 43 percent. However, *support grows to 65 percent if the money from the tax was spent solely on reducing greenhouse gas emissions*. For more information, please see the press release from Field Research Corporation: *www.nextten.org/pdf/GlobalWarmingPressRelease.pdf*. The poll found that 81 percent of those surveyed supports government regulations requiring businesses to cut their emissions.

[4] According to the article in the *Billings Gazette*, "Voters then were asked if they were personally to make major sacrifices to potentially slow global warming, such as paying more for electricity, driving a hybrid vehicle, paying more for gas or using other more expensive alternative fuels. Results showed *63 percent were willing to make major sacrifices*, with 28 percent unwilling and 9 percent undecided." The telephone poll of 625 registered Montana voters was done Dec. 17-19 by Mason-Dixon Polling & Research Inc. of Washington, D.C. The margin of error is plus or minus four percentage points. For more information, see *www.billingsgazette.net/articles/2007/12/31/news/state/18-polls.txt*.

[5] The poll is credible but unpublished and confidential. Findings are for Seattle and King County, Washington. Residents show strong public support for road pricing (66% and 58%, respectively), and for new special taxes dedicated to transportation alternatives (77% and 69%, respectively).

additional provision be made to cover the climate-warming emissions associated with electricity imported from outside the WCI.

Further, Sightline encourages the subcommittee to consider the possibility for a variant of Option 5 that can be applied to particular states. The state of Washington, for example, produces no fossil fuels of its own. Option 5, or a variant, could capture the large majority of the state's fossil emissions simply by tracking natural gas net imports through a handful of pipelines crossing state boundaries; coal imported via a few trains; and petroleum products imported via a few shipping points, pipelines, and transportation companies. An upstream cap could spare much of the rest of the state's economic actors the burdens of emissions monitoring, reporting, and compliance.

Variations in fossil carbon content of transportation fuels

On page 8 of the Scope Options Paper, the Subcommittee notes that future variations in the carbon content of transportation fuels could complicate the carbon accounting for the transportation sector. As the Subcommittee notes, this potential problem does not yet exist, making it possible to include transportation fuels under the cap now, and then later devise a method of addressing this issue, if necessary. In particular, we note that low-carbon fuel standards (LCFS) will require fuel refiners, blenders, and importers to carefully track the carbon content of their fuels. These LCFS tracking procedures will likely dovetail with the cap's administration, allowing covered entities to adjust the number of required allowances to match the carbon content of their fuel.

Furthermore, it may be that it is *appropriate* to treat combustion of non-fossil transportation fuels the same way as fossil fuels—that is, as a net increase in climate-warming emissions from the region's vehicle tailpipes. This is especially true to the extent that biofuel crop production comes at the expense of other land uses, such as native forests and prairies, that are more effective at sequestering atmospheric carbon than biofuels are at avoiding carbon emissions. However, this is obviously a complicated matter, and may be eventually addressed by a system of carbon storage incentives or requirements for the agriculture and forest sectors, or by providing offsets or allowances to biofuels producers. For the moment, then, Sightline expects that these issues, should they arise in the future, can be adequately addressed in the context of LCFS emissions tracking systems.

Non-combustion use of transportation fuels

Page 8 of the Scope Options Paper points out that, in the future, some transportation fuels sold in the region may not be combusted. We think this is unlikely in the near term. But if non-combustion use of transportation fuels should arise in the future, manufacturers and refiners could retain records of the carbon content of any plastics, asphalt, lubricants, and other non-combustible end products, and apply for emissions allowances (or, possibly, offset credits) for the avoided emissions. In fact, a similar exemption system already exists in the federal fuel tax system and in most state tax systems (as when motor fuel is sold for non-road use and is exempted from taxes).

Administration issues for transportation fuels

The WCI's Scope Subcommittee should move expeditiously to examine the fuel tracking capabilities of each member state and province.

Leakage in the transportation sector

We agree with the assessment of the Committee that the potential for leakage for passenger vehicles is limited. Not only do drivers tend to buy fuel close to where they live and work, but surprisingly few WCI residents actually live within an easy drive of a non-WCI jurisdiction. As far as we have been able to determine, Spokane, Washington may be the only significant population center in the entire WCI that is within an easy drive of a non-WCI jurisdiction, though other minor metropolitan areas (such as South Lake Tahoe, California) offer some modest leakage potential. Still, leakage is unlikely to be a major shortcoming of a transportation fuels cap.

More generally, leakage is likely to be a short term problem, as cap-and-trade programs expand geographically, and especially as a North American program emerges. In the meantime, it is important for WCI to set out a model program with comprehensive coverage.

We recognize that aviation and marine fuel may pose more accounting complications than gasoline and on-road diesel, especially for trips that start or end outside the WCI region. But if highway fuels are capped while jet or marine fuels are not, leakage may occur as some travel shifts from capped modes (cars and trucks) to uncapped modes (boats and planes). Thus, we'd recommend that the WCI move quickly to include jet and marine fuels into the cap.

In any event, the risk of leakage from the marine and aviation sub-sectors may be smaller than it might appear at first blush:

> *Marine fuel:* Even if fuel prices rise within the WCI region, it will not be economically efficient for ocean-going vessels to obtain fuel outside the region. Every major West Coast port, from San Diego through Vancouver, BC, is inside the WCI, so vessels would need to transport excess fuel from far-flung ports to create a substantial leakage problem. This would mean carrying excess fuel weight over long distances, and also carrying enough for a long subsequent journey to re-fueling beyond the West Coast. Even vessels that evaded by re-fueling in Mexico or Alaska, the nearest non-covered jurisdictions, would be engaging in expensive and inefficient diversions.
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> *Aviation fuel*: The same obstacles to leakage and evasion are present in aviation, and perhaps more profoundly. Because the vast majority of the region's population and commerce is far from the region's borders,[6] aircraft would need to transport large quantities of excess fuel over long distances. Carrying excess quantities of fuel can be prohibitively expensive because the added weight requires burning more fuel to transport it. Moreover, regulations governing the minimum fuel supply on an aircraft could mean that airline operators would be unable to avoid refueling inside the WCI region. Finally, we note that the EU expects to cap aviation fuels in the near future, which could also provide modest insurance against leakage outside the WCI.[7]

Once again, Sightline appreciates the opportunity to comment, and commends the WCI Scope Subcommittee for its diligent and thorough work.

[6] Roughly 80% of the population and 83% of the economic activity in the WCI region is in the West Coast states and province -- and the vast majority of the population and economic centers within those jurisdictions are in the extreme west.

[7] http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2008/01/13/EDUPUDBAO.DTL

Attachment: Questions and answers about transportation fuels in the Western Climate Initiative market mechanism.

Why should the WCI cover transportation fuels in an economy-wide cap?

Based on Energy Information Administration data, *more than half of all fossil fuel emissions in the WCI states come from transportation*.[8] In contrast, electricity generation represents 26 percent of fossil fuel CO_2 in the region—only about half of the emissions from the transportation sector.

If the WCI region is to reduce its emissions by 80 percent by 2050, it will have to start dealing with transportation *as soon as possible*.

Is it complicated to cap transportation fuels?

It's actually fairly straightforward to include transportation fuels in an economy-wide cap. As with all aspects of cap and trade, the politics may be tricky. But *technically*, covering transportation fuels may be simpler than electricity—and certainly simpler than load-based regulation of the electricity sector.

How would it work?

The fuel supply chain has several "choke points," well upstream from consumers and filling stations. At a chosen choke point, fuel handlers—either purchasers or sellers—would be required to *track fuel volumes, and obtain emissions permits for the carbon that will be released when those fuels are burned*.

What "choke points" would work for transportation fuels?

We'd suggest two possibilities: (1) petroleum refiners and importers; and (2) the "terminal rack."

(1) A cap that applies to oil refiners and importers offers at least one major advantage, as it would cover virtually *all* CO_2 emissions from oil, not just transportation fuels. However, accounting for exempt product streams (e.g., lubricants, asphalt, exports), as well as apportioning auction revenue among states, may create technical and political complications.

(2) The "terminal rack" is the facility where fuel from a refinery or pipeline is delivered to trucks, trailers or rail cars. Currently, the IRS and many states collect gasoline and diesel taxes at the terminal rack, since virtually all highway fuels flow through the rack, and sales volumes are carefully measured by buyers and/or sellers. A "cap at the rack" system can piggyback on the state-level tax systems—systems that already accurately account for imports and exports, and that have careful auditing controls for fuel volumes.

How would cap and trade for transportation fuels reduce emissions?

Fuel handlers will pass on most of the market value of emissions allowances as higher prices for consumers. And the economic literature is quite clear about this: *increases in fuel price create incentives for conservation*. These incentives work on many levels: sales of fuel-efficient vehicles get a boost; families with two vehicles use the more efficient one more frequently; some drivers cut back on

[8] "More than half" includes refinery emissions. Excluding refinery emissions, transportation fuels are responsible for 49% of all CO_2 emissions from fossil fuels in the WCI states—nearly double the importance of any other sector. More generally, petroleum alone is responsible for fully 57% of all fossil fuel CO_2 emissions in WCI states, compared to just 19% for coal. All data from US Energy Information Administration, State Carbon Dioxide emissions, 2003 at http://www.eia.doe.gov/environment.html.

discretionary trips, or chain some trips together; and lower-carbon fuels may become price-competitive with petroleum. Ultimately, higher fuel prices help encourage more efficient land use patterns, as demand grows for housing that's near stores, services, and jobs. Likewise, higher prices can encourage investment in infrastructure to support lower-carbon travel alternatives, from streetcars to sidewalks.

These adjustments may be gradual and subtle, but they will be real, and their effects will compound over time.

What about complementary policies?

Complementary policies—transit infrastructure, low-carbon fuel standards, CAFE standards, transportation demand management, and smart growth policies—will give consumers more options to deal with rising fuel costs. In fact, if these complementary policies are successful, they will reduce the price of allowances; the complementary policies will do the "work" of reducing emissions, without major price signals required.

However, if these complementary policies aren't successful, or aren't implemented effectively, then the cap *will* create a price signal for emissions reductions—a signal that's precisely calibrated to meet the WCI's conservation targets. Think of a transportation fuels cap as providing a pricing backstop, in case the other policies aren't effective at reducing emissions economy-wide.

The WCI timeline is short. Shouldn't we worry about transportation fuels later?

We don't think so. Because transportation emissions are roughly twice as large as the emissions from any other sector, we feel that the WCI should make transportation a top concern. Plus, reducing transportation emissions will likely require major, long-term investments in land-use planning and infrastructure, not to mention policy changes and technologies. Delays in dealing with transportation fuels will be costly, and could ultimately undermine the WCI's achievement of its emissions reduction goals.

Also, planning to phase in transportation fuels later could be risky—a "temporary" delay could be extended indefinitely. Given the importance of transportation fuels to WCI emissions goals, it might be better to delay the cap in its entirety if there's a chance that WCI might not get around to capping transportation fuels later.

What about the politics?

Until the WCI proposals see the light of day, no one really knows how viable *any* of its recommendations will be. In the meantime, we think that the WCI should actively pursue an economy-wide emissions reduction system—which inherently

Surely you don't think a transportation fuels cap is politically possible if it will raise gas prices?

Recent opinion research suggests that North Americans may be far more receptive to energy price increases than previously thought—suggesting that public may be substantially ahead of its political leadership when it comes to addressing climate change.

For example, a late-2007 global poll sponsored by BBC World Service[9] revealed that large majorities of Americans are willing to support higher energy prices, particularly if revenue is directed toward alternative energy.

- The American public was actually a little over the global average*, with 65 percent saying it will definitely or probably be necessary for these energy costs to increase to encourage conservation,* compared with 32 percent who thought it would definitely or probably not be necessary.
- A slight majority (51 percent) of US respondents opposed energy taxes. Yet when those opposed were asked "what if the revenues of this energy tax were devoted only to increasing energy efficiency and developing energy sources that do not produce climate change?" *most of those opposed said they would then support the energy tax*. In the United States, 74 percent either favored the energy tax to begin with (46 percent) or favored it if the revenues were used to promote alternative energy (28 percent).

A November 2007 poll conducted by Field Research Corporation found similar results in California, which is home to well more than half of the WCI population.[10] And a December 2007 poll conducted by Mason-Dixon Polling & Research Corporation found that Montana voters were just as supportive of consumer price increases.[11] Yet another 2007 poll found similar results in both Seattle and in surrounding King County.[12]

Why do we need a cap at all? Why can't complementary policies take care of transportation emissions?

Sightline supports complementary policies—including fuel efficiency standards, smart growth, better transportation policies, transit investments, and well-designed carbon standards for fuels. But by themselves, these policies simply can't ***guarantee*** that WCI will reach its targets. Only a hard cap on transportation fuels provides that security.

However, if complementary policies do reduce emissions, then they will help keep emissions prices in check. What's more, the complement works both ways: auction revenue can accelerate complementary policies (through investment in research and development, among other things). Significant advances in

[9] This poll was conducted by GlobeScan/Program. For more information please see the website for Center for American Progress, www.americanprogress.org/issues/2007/11/snapshot_sacrifice.html.

10 61 percent favored the requirements if the new rules increased the cost of goods and services. Asked about a carbon tax, Californians initially like the idea (72 percent support)… 53 percent said they would remain supportive if the tax increased costs for consumers… imposing a carbon tax on individuals is narrowly favored 52 percent to 43 percent. However, support grows to 65 percent if the money from the tax was spent solely on reducing greenhouse gas emissions. For more information, please see the press release from Field Research Corporation: www.nextten.org/pdf/GlobalWarmingPressRelease.pdf. The poll found that 81 percent of those surveyed supports government regulations requiring businesses to cut their emissions.

[11] According to the article in the *Billings Gazette*, "Voters then were asked if they were personally to make major sacrifices to potentially slow global warming, such as paying more for electricity, driving a hybrid vehicle, paying more for gas or using other more expensive alternative fuels. Results showed *63 percent were willing to make major sacrifices*, with 28 percent unwilling and 9 percent undecided." The telephone poll of 625 registered Montana voters was done Dec. 17-19 by Mason-Dixon Polling & Research Inc. of Washington, D.C. The margin of error is plus or minus four percentage points. For more information, see *www.billingsgazette.net/articles/2007/12/31/news/state/18-polls.txt*.

[12] The poll is credible but unpublished and confidential. Findings are for Seattle and King County, Washington. Residents show strong public support for road pricing (66% and 58%, respectively), and for new special taxes dedicated to transportation alternatives (77% and 69%, respectively).

fuels and vehicle technology, for example, are far more likely to occur if the research can be funded aggressively.

How should allowances be distributed?

For transportation fuels, it is vitally important that emissions not be given out for free. The economic literature shows that upstream fuel companies can pass on virtually all of the market price of allowances to consumers. If firms get permits for free, they'll raise the price of fuels—and simply pocket the money. In the transportation sector, grandfathering is a perfect recipe for unearned corporate windfalls, which would raise consumer costs without providing any compensating public revenue, which would likely undermine public support for cap and trade. For transportation fuels, a full auction of allowances is absolutely vital to protecting the public interest.

What about airplane and boat fuel?

We recognize that jet and marine fuel pose more accounting complications than gasoline and diesel, especially for trips that start or end outside the WCI region. But if highway fuels are capped while jet or marine fuels are not, "leakage" may occur as some travel shifts from capped modes (cars and trucks) to uncapped modes (boats and planes). Thus, we'd recommend that the WCI move quickly to include jet and marine fuels into the cap.

Will a cap on transportation fuels be consistent with the design features of a cap on other sectors, such as electricity?

It's impossible to know until we have a more fully developed proposal for the other sectors. But if for some reason WCI requires dissimilar programs then it's perfectly possible to have two side-by-side but fully independent cap and trade programs—one for transportation fuels and a smaller one for electricity, for instance.[13] That said, because transportation emissions are as big as all the other fossil fuel sources combined, there may be reason for the *other* sectors to conform to the design for transportation.

Tell me more about the economics. Why will prices rise?

Outside of tightly regulated markets, cap and trade programs work very much like taxes.[14] The cap restricts emissions, which restricts fuel supply, which makes prices go up. However, if demand declines due to complementary policies and well-informed consumer choice, then the price may not rise by very much. (That's where the complementary policies can help, as can effective use of auction revenue.)

Will higher prices <u>really</u> decrease consumption?

There is a surprisingly persistent belief that gasoline consumption is "inelastic" – that is, it does not go down when prices go up. Extensive empirical research over many decades shows this belief to be mistaken. Like most other goods, gasoline consumption responds to changes in price. Of course, like most other goods, the elasticity of demand for energy is strongly affected by the availability of substitutes, by the volatility of prices, and by other factors.

[13] Two independent programs would yield less economic results than a unified one (though independence would be no less economic than capping only electricity and not transportation).

[14] The biggest difference may be that a tax makes price increases constant but leaves emissions variable, while a cap and trade program makes emissions constant but prices variable. In fact, a cap and trade program can be thought of as a dynamic and variable tax; one that self-adjusts to obtain precisely the amount of reductions desired by policymakers.

Though estimates vary, most economic research shows that the "long-term" elasticity of gasoline demand is about 0.6 to 0.7 percent – that is, when gas prices rise by 10 percent, consumption declines by 6 to 7 percent, not accounting for changes in income. (There is some evidence, however, that recent consumption patterns have revealed lower elasticity.) Generally speaking, demand for gasoline becomes more elastic when prices rise and stay high for a longer period of time, and when consumers believe that prices will stay high.[15]

Tell m e more about a "refiners and importers" cap.

Placing the point of regulation at petroleum refiners and importers would offer several distinct advantages. In particular, it would cover virtually *all* petroleum-related CO_2 emissions in the WCI, including heating oil, minor products other than highway fuels, and consumption of oil in the refinery itself. Not only would this provide comprehensive coverage for petroleum emissions, it would also help prevent "leakage"—that is, substitution of an uncapped fuel stream for a capped fuel stream.

However, there are a few complications to be aware of:

Exemptions: For practical and political reasons, some petroleum products may be exempt from a cap, including: fuels exported outside the WCI; "bunker fuels" used for ships and airplanes; and petroleum products that aren't burned, such as lubricants. With a refiner cap, a system of allowance rebates, including tracking and auditing, would likely be required for petroleum products exempted from the cap. This system could operate much like the existing tax rebate structure; but price volatility for emissions permits may turn emissions rebates into an opportunity for arbitrage or price manipulation.

Who gets the allowance revenues? As for any commodity that crosses WCI borders, distributing auction revenue among WCI jurisdictions is likely to be contentious. As an example: Oregon filling stations get gasoline from Washington refineries. Would auction revenue—ultimately paid by Oregon consumers—be attributed to Washington, where the refinery is located, or to Oregon, where the gasoline is purchased and consumed? This issue could easily become a sticking point for WCI negotiations, and working around it could require supplementing refinery data with additional data on state-level fuel consumption.

Tell me more about "cap at the rack."

A "cap at the rack" system might not be as comprehensive as a refiner-and-importer cap; in particular, it wouldn't cover refiner emissions, and may not be appropriate for smaller fuel streams not covered by existing "tax at the rack" systems. However, an extensive fuel taxation and auditing infrastructure already exists at the rack—federal fuel taxes are collected at the rack, as are state fuel taxes in many states—and fuel distributors are already used to handling tax accounting and other regulatory requirements.

[15] A good short primer on the demand elasticity of gasoline can be found at About.com, here. Another excellent source of information is Todd Litman, Transportation Elasticities, Victoria Transport Policy Institute. Extensive literature reviews of the subject include: Goodwin, P.B., "A Review of New Demand Elasticities With Special Reference To Short and Long Run Effects of Price Changes," *Journal of Transport Economics and Policy*, May 1992, pdf; Espey, Molly, "Gasoline Demand Revisited: An International Meta-analysis of Elasticities," *Energy Economics*, 1998, vol. 20, issue 3, pages 273-295, abstract; Graham D. J. and Glaister S., "The Demand for Automobile Fuel: A Survey of Elasticities," *Journal of Transport Economics and Policy*, Volume 36, Number 1, 1 January 2002 , pp. 1-25(25), abstract; Goodwin, Phil et al., "Elasticities of Road Traffic and Fuel Consumption with Respect to Price and Income: A Review," *Transport Reviews, Vol. 24, No. 3, 275–292, May 2004*, pdf.

Not every WCI state employs a “tax at the rack” system; Oregon doesn’t for diesel, and as far as we can tell New Mexico doesn’t tax at the rack for any highway fuels. Plus, for some non-highway fuel streams, new monitoring, auditing and enforcement mechanisms may be required. State programs may need to be coordinated and harmonized, to ensure that monitoring and enforcement standards are compatible, and are sufficient to prevent “cap evasion,” much as state and federal tax systems are designed to prevent tax evasion.