

Subcommittee Report on Overlapping Policies

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California's cap-and-trade program to reduce greenhouse gases is a highly visible piece of the state's portfolio of climate policies. However, it is only one element of the state's program to reduce greenhouse gases to meet its 2030 target. The state has adopted a number of additional policies, including a stringent Renewable Portfolio Standard, land use measures to reduce vehicle miles traveled, a Low Carbon Fuel Standard, and greenhouse gas emissions standards for various categories of vehicles. The 2017 Scoping Plan adopted by the Air Resources Board, in fact, identifies regulatory measures that are designed to achieve a majority of the emissions reductions required by statute. The cap-and-trade program is, nevertheless, an extremely important part of the program. It serves a number of valuable functions. These include:

- i) introducing greater cost effectiveness by making sure that low cost opportunities for emissions reductions are captured;
- ii) ensuring, through the cap, that the overall statutory emissions goals are achieved;
- iii) providing a signal to innovators about the value of low-carbon investments.

Though California's suite of regulatory policies is impressive and responsible for a significant portion of GHG emissions, one issue they raise is that these policies may overlap with the cap-and-trade program by targeting the same regulated entity more than once. By adopting overlapping policies, the state may create effects that are not always fully transparent or that can undermine the goals of the policies. For example, overlapping policies may dampen prices in the cap-and-trade market. These price-dampening effects can, in turn, reduce incentives for technological innovation. Overlapping policies also tend to (though not always) mask their cost and may be more expensive per ton reduction of GHGs than a less fettered cap-and-trade program. Overlapping policies can also produce many benefits, some of which we also highlight. Our focus in our subcommittee report is on these policies and their interaction with the allowance market.

Overlapping policies/regulated sectors

Examples of policies that overlap with the cap-and-trade program include:

- 1) The Low Carbon Fuel Standard (LCFS) regulates the full life cycle of transportation fuels. This includes their production, transport, and combustion. The cap-and-trade program includes petroleum transport fuels and natural gas, though is not based on life cycle emissions but instead only combustion. Compliance for one program can achieve compliance for the other if the compliance for one program reduces the required amount of reduction for the regulated entity under the other program; whether the LCFS or the cap-and-trade program requires the compliance depends on individual circumstances (See Controlling Greenhouse Gas Emissions from Transport Fuels, Parson, Forgie, Lueders and Hecht at 41). Even though LCFS allowance prices are significantly higher than allowance prices under cap-and-trade, the interactive effects of the program vary depending on factors like the carbon intensity of a particular fuel. As Parson, et al, explain, a fuel like fossil CNG,

which has a relatively low carbon intensity, receives credits under the LCFS but must surrender allowances under cap-and-trade. By contrast, some high-intensity fuels achieve their compliance through purchasing LCFS allowances, not through cap-and-trade.

- 2) The Renewables Portfolio Standard (RPS) requires the state's electric utilities to achieve a set percentage of their energy from defined renewable sources such as wind and solar. The percentage has increased over time, so that by 2030 the state's utilities must achieve 60 percent of their energy from defined renewable sources. The state's utilities (both investor-owned and publicly-owned) are also subject to the cap-and-trade program. The RPS in effect directs the utilities how to achieve the majority of their emissions cuts – by procuring energy from renewable sources and is expected to have additional costs to the state even as it advances the integration of renewable energy technology into the electricity system. If the RPS did not exist, utilities could instead meet their cuts under the cap-and-trade program by choosing how they would comply. Other programs that operate similarly include energy efficiency standards and mandates for the procurement of battery storage. Each of these have their own long-run justifications, but each may introduce additional costs in the short-run compared to cap and trade (though energy efficiency may be cheaper in the short-run).
- 3) The Zero Emission Vehicle (ZEV) and GHG mobile source standards. Expanded electrification and energy efficiency in transportation will yield reductions over the next decade. Although car manufacturers are not subject to the cap-and-trade program, as described above, fuels are.

Issues Raised by Interactive Effects of Cap-and-Trade, Complementary Policies

The overlap of the cap-and-trade program with other regulatory measures could be mutually reinforcing or could undermine the incentives or cost effectiveness of each of the approaches. Overlapping and companion policies have many and varied justifications, including importantly the attainment of ancillary environmental benefits and especially environmental improvements in disadvantaged communities. For example, the RPS, with its requirement that utilities procure renewable energy, lowers air pollutants to the degree that renewable resources displace dirtier energy sources like natural gas. Other justifications include promoting targeted technological change and building infrastructure. For example, the RPS may have helped stimulate technological innovation and driven down procurement costs for renewable projects.

The policies that directly regulate emissions from sources that are also covered by the cap-and-trade program, however, can be expected to put downward pressure on the cap-and-trade allowance price. That is because when policies direct how emissions will be reduced (through, for example, mandating that utilities procure a set amount of renewable energy), there are fewer emissions to be reduced in the cap-and-trade market (even though the lower emissions resulting from the RPS help utilities achieve compliance). A lower price in the market has advantages, such as protecting California industry, but that lower price masks what are in some cases higher costs for these industries if the cost of meeting the RPS, for example, is higher than the cost of cutting emissions through other means. Another

disadvantage of a lower allowance price is that it lessens the economic signal from the cap-and-trade program that influences investments by industry, businesses and households and therefore opportunities for technological innovation. As climate goals become increasingly ambitious, most economists advocate for an increasing role for pricing. However, a declining price that results from an abundance of overlapping policies undermines confidence in the market and expectations about a price signal, creating a cycle that requires yet more regulation to achieve long-run emissions reduction goals.

In some cases, it appears that an allowance price that could practically be achieved – even without overlapping policies -- would be insufficient to incentivize the necessary emissions reductions in the short run or the investment in infrastructure and innovation that is necessary in the long run. In this case, government regulation may have a special role in coordinating these transformations. This seems especially true in the transportation sector, where allowance prices in cap-and-trade may be insufficient to direct the changes necessary to achieve large emissions cuts in the sector.

California enforces its vehicle mandates under a waiver granted by the US Environmental Protection Agency (EPA). The EPA is currently proposing to revoke California's waiver to issue GHG standards for passenger automobiles and for its ZEV program. The ARB Scoping Plan for 2017 considers the possibility that the federal government will attempt to limit California's authority to issue tailpipe standards. If the federal effort succeeds in either delaying the implementation of the standards or blocking them all together, the Scoping Plan calls for achieving emissions reductions from the same sector. However, it will be a challenge for California to do so if the federal government succeeds in either delaying or forestalling vehicle emissions standards for 2021-2025 altogether. Additionally, under the Clean Air Act, California will need to get federal permission (a waiver) to issue standards for 2025 and beyond. Although California has a strong legal case that it can continue to impose its 2021-2025 standards for passenger automobiles and require compliance with its ZEV program, no legal case is without uncertainty. And transportation is the largest source of GHGs in the state and the sector showing increases, rather than decreases, in emissions in recent inventories.

Questions/areas for future research raised by these issues

Overlapping policies raise a number of issues that could benefit from additional analysis and consideration. Our subcommittee is posing two:

1. The potential low allowance prices that may result due to overlapping or companion policies.

We believe it would be beneficial to have more analysis about the price effects of having policies that overlap with cap and trade. First, on a per ton of GHG reduction, are there estimates of the cost of various overlapping policies like the RPS, energy efficiency and car standards? And are there estimates about the degree to which overlapping policies put downward pressure on cap-and-trade allowance prices? If the downward pressure is significant there are design choices for the cap-and-trade market that can alleviate this pressure. For example, the existing price floor provides assurance of a minimum value of investments in compliance. But there may be opportunities to supplement the price floor with additional measures, such as additional emissions/price containment points or other adjustments to allowance supply when companion policies have their desired effect. Relatedly, there may be

opportunities to align price-based policies like the RPS and the LCFS with the cap-and-trade program provides cost and price management in a complementary way across these programs. We recommend that ARB consider these possibilities and opportunities.

2. What is CARB doing to evaluate alternative methods to reduce emissions in the transportation sector if the state cannot implement its tailpipe and ZEV standards?

We list below several possibilities, none of which we have examined in detail. We recommend that ARB consider these possibilities.

- Consumption based pricing of vehicle miles traveled;
- Increase in tax subsidies or direct subsidies for EV purchases;
- Feebates associated with vehicles according to technology characteristics;
- Additional housing and land use standards to reduce vehicle miles traveled;
- Regulations or limitations on extraction of fossil fuel resources;
- State fleet mandates, and incentives for corporate and local government fleet conversions;
- Carbon intensity of vehicles manufacturing modeled after the Low Carbon Fuel Standard but focused on automobiles rather than fuels.