

Response to the
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United States House of Representatives
Select Committee on the Climate Crisis

Why Fee and Dividend Will Reduce Emissions Faster
Than Other Carbon Pricing Policy Options

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Why Fee and Dividend will Reduce Emissions Faster Than Other Carbon Pricing Policies

By Daniel H. Miller and James E. Hansen

Summary

The Fee and Dividend carbon pricing policy is the single most effective way to quickly and dramatically reduce greenhouse gas emissions. Human-caused emissions of carbon dioxide (CO₂) and other greenhouse gases (GHGs), primarily due to the burning of fossil fuels, is causing the Earth to heat up, resulting in dangerous changes to the climate system. To minimize future impacts, GHG emissions must be lowered dramatically and urgently. To do so, financial incentives must be aligned with climate realities by “putting a price on carbon.” While there are many carbon pricing policies being considered, only Fee and Dividend has all the essential characteristics required for a successful policy.

With a Fee and Dividend carbon pricing policy, a rising fee is placed on the carbon content of fossil fuels and fossil fuel companies pay the fee where the fossil fuel is extracted or imported (at the well, mine, or port of entry). 100% of the money collected is distributed as a dividend to every legal resident on an equal basis, so a poor person and a wealthy person receive the same check every month. To protect American businesses and encourage foreign governments to implement carbon pricing policies, a border carbon adjustment duty is placed on imports coming from countries without their own price on carbon.

The Fee and Dividend policy will reduce emissions faster than other carbon pricing policy options because it is the only one that has the essential characteristics required of a successful carbon pricing policy: (1) the carbon fee is known in advance, keeps rising, and is not volatile, and (2) because all the money collected is returned to the public, the fee can quickly grow large enough (>\$100/ton-CO₂) to have a big impact on reducing emissions. Other advantages of Fee and Dividend are that it is simple, fair, transparent, and does not hurt the poor or middle class. In fact, **Fee and Dividend is anti-regressive (i.e., it is progressive) and almost all poor and middle-class households increase their net income under the policy. Therefore, the policy directly promotes environmental justice.** The Department of the Treasury estimates that the bottom 70% of households will earn more from the dividend than they pay in higher prices due to the fee. **Economic studies show that Fee and Dividend will, over 20 years, create 2.8 million jobs, grow GDP by \$1.375 trillion, while reducing emissions by more than 50%.**

Background: The Biggest Market Failure in History

For a market-based economy to run most efficiently, the cost of products and services must reflect their true cost to society. For this reason, government policy usually prevents people or companies from “privatizing the profits and socializing the costs.” For example, while someone can save money by dumping their garbage in their neighbor’s yard (to avoid paying for a waste disposal service), that is illegal and they can be arrested or sued for doing so. But when it comes to fossil fuels, everyone is allowed to dump their waste CO₂ into our collective atmosphere.

This “policy” of allowing fossil fuel users to pollute the atmosphere for free has created what Sir Nicholas Stern has called “the greatest market failure the world has ever seen”³:

"Climate change is a result of the greatest market failure the world has seen. The evidence on the seriousness of the risks from inaction or delayed action is now overwhelming. We risk damages on a scale larger than the two world wars of the last century. The problem is global, and the response must be a collaboration on a global scale."

To correct the market failure, the price of fossil fuels must reflect their true cost to society, including the damage caused by fossil fuel-induced climate change. The way to do this from a policy perspective is to put a fee or tax on the carbon content of fossil fuels. There are many ways to “put a price on carbon” but most of them have issues that limit their effectiveness in lowering emissions. The policy best suited to reduce emissions dramatically and urgently is known as “Fee and Dividend.”

³ <http://www.guardian.co.uk/environment/2007/nov/29/climatechange.carbonemissions>

Characteristics of Carbon Pricing Policies

The three main characteristics of any carbon pricing policy are:

1. What portion of the economy does the policy cover?
2. How is the fee or tax determined?
3. How is the collected money used?

What portion of the economy does the policy cover?

The two main choices here are that policy either covers only major point source polluters (e.g., power plants, cement plants, steel mills, etc.) or it covers the entire economy. Because “Cap and Trade” policies require permits to be issued to CO₂ emitters, such policies only cover major emitters. Most other carbon pricing policies – including Fee and Dividend – charge the fee where the fossil fuel is extracted from the ground or at the point of importation and, therefore, such policies cover the entire economy. **Policies that cover the entire economy will be more effective than those that only cover major emitters.**

How is the fee or tax determined?

There are two main ways to determine a carbon fee. The first is to set a limit or “cap” on emissions (or fossil fuel extraction) that decreases every year and then have the emitters (in the case of Cap and Trade) or the fossil fuel companies (in the case of other “cap” policies) bid in an auction to buy the right to emit or extract. The other method for setting the fee is to simply select a pre-determined (*a priori*) starting fee and yearly increment. For example, HR763⁴, *The Energy Innovation and Carbon Dividend Act of 2019*, a Fee and Dividend bill now before Congress, sets an initial fee of \$15/ton-CO₂ that rises by \$10 every year.

Proponents of “cap” policies argue that the cap sets a ceiling on emissions and such a ceiling is critical to meeting emissions goals. They also argue that the auction mechanism sets the “optimum” price to meet such goals. Both of these arguments are theoretical, and not true in reality.

There are many reasons why a “cap” is a poor choice for a carbon pricing policy:

1. Policymakers are loath to set a cap at a level that will quickly reduce emissions (as climate science says must be done) because such a cap will result in a high carbon fee that will be passed on the consumers and the hard limit on emissions or extraction would seriously disrupt the economy. Instead, policymakers are incentivized to set modest caps that do not achieve the results that science clearly says must be achieved.
2. While a cap theoretically places a ceiling on emissions, *it also places a floor on emissions*. For example, if a recession causes a slowdown in economic activity that results in lower emissions, the carbon fee auction price will drop precipitously, and emissions will rise relative to what they

⁴ <https://energyinnovationact.org/wp-content/uploads/2019/01/Energy-Innovation-and-Carbon-Dividend-Act-2019.pdf>

would be with a stable fee. In addition to economic recessions, technological innovations such as low-cost solar power can cause a drop in fossil fuel demand and thus a drop in the carbon fee auction price.

3. The carbon fee auction price is never known in advance and is volatile, so this makes it difficult for companies, investors, and consumers to plan for the future. This is a critical issue. *For any given fee, there will be far more investment in, and development and deployment of, low-carbon energy solutions if the fee is known in advance and is not volatile. Therefore, a “Fee”-based policy will be more effective than a “Cap”-based policy.* The value of certainty can be clearly seen in US Treasury bonds. While the interest rate of Treasury bonds is low relative to alternative investments, the certainty that the investor will receive the interest and principle set forth at purchase results in Treasury bonds being an extremely popular form of investment. Likewise, Fee-based policies will result in more private capital being invested in clean energy solutions and this will lead to far more deployment of such technology and, therefore, far greater emissions reductions.

Because of the above problems with caps, policymakers sometimes “tweak” the auction process to establish floors and ceilings for the auction price. Of course, these tweaks make the auction price closer to an *a priori* price without providing the full benefit of a known-in-advance and non-volatile fee.

Cap vs. Cap

As mentioned above the “cap” in Cap and Trade is quite different from the “cap” in Cap and Dividend or other Cap policies. In Cap and Trade, the cap only applies to major emitters who are required to purchase emission permits. In other cap policies, the cap is on the total CO₂ equivalent of fossil fuels extracted from the ground so it covers the entire fossil fuel economy (within a nation, but no practical way to enforce a global cap has been proposed). Also, in Cap and Trade the emission permits can be traded or offset with sometimes questionable “emissions reduction” programs. For example, under Cap and Trade, the cap on emissions can be exceeded if an emitter buys an offset that may, for example, involve someone promising not to cut down a forest in the future. In other cap policies, the cap is on the extraction of fossil fuels (by a given nation) and there are no offsets (except for actual sequestration of CO₂) so it is a real cap.

How is the collected money used?

The basic choices for how the collected money is used is (1) have the government use it, (2) distribute (“dividend out”) the money to the public, or (3) do a split between (1) and (2).

The government has several choices on how to use the money:

- Put the money in the general treasury
- Spend the money on clean energy R&D, tax credits and other ways to directly stimulate clean energy deployment
- Offset another tax such as the payroll tax or the corporate income tax

- Provide block grants to states so they can spend the money as they see fit

Likewise, there are several choices on how the money can be distributed to the public:

- Give every legal resident an equal share
- Give shares based on income (the poor get more than the middle class who get more than the wealthy)
- Give shares only to the poor to offset the regressive burden the carbon fee places on them

The answer to which is the best way to use the money is related to the fact that **the higher the carbon fee, the faster emissions reductions will be**. But as France recently found out (with Yellow Vest protests), it is important that the public accept the carbon fee. Just setting a high carbon fee will likely fail, because the public will reject the fee due to the impact it has on their spending power. The only way to get the public to accept a high carbon fee is to deliver all of the money collected to the public. Just giving payments to the poor will not work because the middle class will then protest the fee. And putting the dividends on a sliding scale to favor lower incomes will reduce the percentage of families that receive an economic benefit from the carbon policy. **Therefore, the most effective approach is to dividend the money to every legal resident on an equal basis** so that about 70% of families receive an economic benefit from the policy.

It should be noted that if the government spends the collected revenues, then the carbon policy will be *regressive* and hurt the poor more than other income classes because the poor spend a higher proportion of their income on fuel, food, and other items that will be impacted by the carbon fee.

The Fee and Dividend Policy

The most simple, fair, transparent, and effective way to put a price on carbon is the *Fee and Dividend* policy. Under Fee and Dividend, fossil fuel companies pay a rising fee on the CO₂ content of fossil fuels when and where they are extracted from the ground (at the well or mine) or imported into the country (at the port of entry). The fee starts out small — \$15/ton-CO₂ — and rises \$10 each year. 100% of the money collected — *every penny* — is distributed to every legal resident on an equal basis, so everyone receives the same check every month. This eliminates the issue of regressive taxation inherent in other carbon pricing policies and also engenders public support for a high carbon fee.

Because wealthy people generate far more CO₂ than an average person, and because governments generate about 30% of CO₂ emissions but don't get a dividend, **almost all poor and middle-class households will earn more from the dividend than they pay in higher energy, product, and service prices due to the carbon fee.** A study by the US Department of the Treasury⁵ determined that about 70% of households (including almost all poor and middle-class families) will earn more from the dividend than they pay in higher prices. Therefore, **environmental justice is integral to the Fee and Dividend policy.**

IMPACT OF CARBON DIVIDENDS ON U.S. FAMILY INCOMES

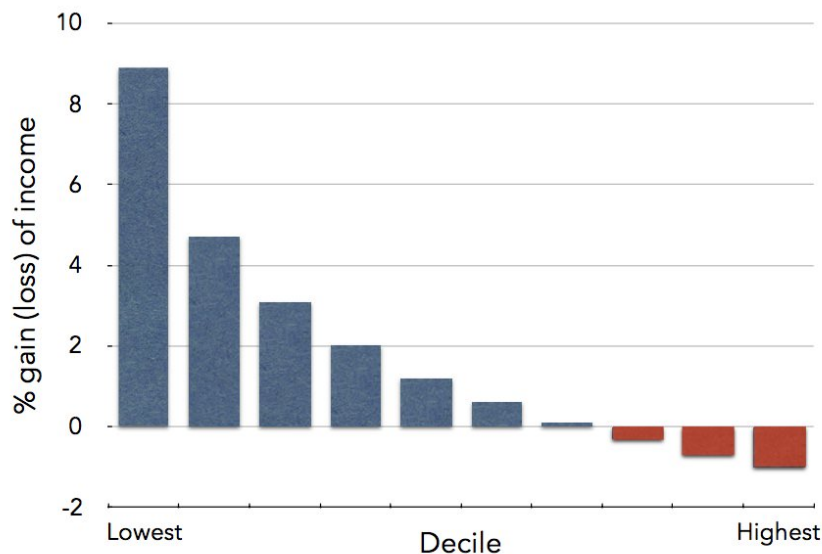


Figure 1.

⁵ <https://harvardpolitics.com/united-states/carbon-fee-and-dividend-bipartisan-progress-towards-a-climate-change-solution/>

To protect American industry from the impact of the carbon fee and to encourage other countries to implement their own price on carbon, a border carbon adjustment (BCA) tax or duty would be placed on products coming from countries that do not have their own fee on carbon. In addition, companies exporting to countries without a carbon fee would receive a rebate of the fee paid on fossil fuels used to produce products for the noncompliant nation. Those countries would be faced with the choice of reducing exports (or effectively sending lots of money to the United States to offset the duty) or put a price on carbon in their own countries. They will choose to put a price on carbon, especially if the EU and China (who already have carbon pricing policies) also implement a border carbon adjustment.

An economic analysis by Regional Economic Models, Inc. (REMI) and Synapse Energy Economics, Inc. shows that the **Fee and Dividend policy will, over 20 years, cut emissions by more than 50% and create 2.8 million jobs while growing U.S. GDP by \$1.375 trillion**⁶.

Other advantages of Fee and Dividend include:

1. Because 100% of the money collected is returned to the public, **Fee and Dividend is inherently revenue neutral.**
2. Fee and Dividend makes clean energy technologies more competitive compared to dirty fossil fuels, but it does not favor any particular clean energy technology. For this reason, **Fee and Dividend does not pick winners and losers.**
3. As mentioned previously, unlike Cap and Trade, the **Fee and Dividend fee covers the entire fossil fuel economy**, not just major emitters.
4. While F&D does not put a cap on emissions, the fee does not drop if there is a recession or a new technology lowers emissions faster than expected. Therefore, **Fee and Dividend can lower emissions faster than a cap system can.** To address the possibility that emissions do not fall as quickly as expected, HR763 has a provision where the yearly fee increment goes from \$10 to \$15 (adjusted for inflation) if emissions do not drop as fast as specified in the bill. Even with this provision, the fee will never be lower than the expected known-in-advance fee, so investors, industry, and the public can be confident in developing and deploying clean energy technology and systems. So while the Fee and Dividend carbon fee starts out at only \$15/ton-CO₂, everyone will know that it will be at least \$105/ton in 10 years, so **Fee and Dividend will have an immediate and dramatic impact on all energy system investment, planning, R&D, and deployment** (including decisions on what type of new power plants to build), since most energy systems have lifetimes that exceed 10 years. And consumers who are purchasing new vehicles will consider the fact that gasoline will cost more in the future.
5. Unlike Cap and Trade, Fee and Dividend does not have “offsets” that are bought and sold. **Fee and Dividend therefore eliminates middlemen and traders and also eliminates the gaming of the system** such as manufacturing materials with very high global warming potential so that the materials can be later destroyed to earn an offset payment⁷.

⁶ REMI: *The Economic, Climate, Fiscal, Power, and Demographic Impact of a National Fee-and- Dividend Carbon Tax.* <http://citizensclimatelobby.org/remi-report/>

⁷ <https://insideclimatenews.org/news/20100907/world-bank-caught-controversy-over-suspect-carbon-credits>

6. **Fee and Dividend is simple, fair, and transparent.** Everyone earns the same dividend every month so the public can be confident that the policy is being implemented in fair manner. Unlike complex cap policies, Fee and Dividend is easy to explain and understand which is a big advantage in gaining public support for the policy.

There is a common misconception about Fee and Dividend: Many people assume that the public must spend their dividends on clean energy and energy efficiency in order for the policy to be effective. This is not true. The price of items made with heavy reliance on fossil fuels will rise; the consumer needs only follow their usual habit of buying products that are the best bargain. Fossil fuel emissions will drop rapidly as we move to clean energy in the fastest practical way.

Fee and Dividend vs. Carbon Dividends Plan

There are two major Fee and Dividend-type plans currently vying for the attention of policymakers. The original and “pure” form of the policy is supported by the Citizen Climate Lobby⁸ (CCL) and is the policy described above. Another group, the Climate Leadership Council⁹ supports a policy they call Carbon Dividends Plan (CDP – sometimes also referred to as the “Baker-Schultz” plan) which starts with the framework of the CCL policy but modifies it to be more attractive to fossil fuel companies. The differences between the CCL and CDP policies are:

1. The CCL carbon fee starts at \$15/ton and goes up \$10 every year. The CDP fee starts at \$40/ton but goes up only at the cost of living plus a small amount every year. Therefore, the CCL fee will be \$105/ton in 10 years, while the CDP fee will be about \$50/ton. Because the CCL policy reaches a higher known-in-advance carbon fee, **the CCL version will lower emissions faster than the CDP version.**
2. Under the CDP policy, most other carbon regulations (like the Clean Power Plan) would be scrapped. While pricing carbon is the single most important policy to reduce emissions, **other carbon regulations are required to address climate quickly and effectively.**
3. Under the CDP policy, fossil fuel companies will be absolved of their liability for past emissions.

Note that the CDP policy does not achieve a carbon fee over \$100/ton in a reasonable timeframe which is a key success metric for an effective carbon pricing policy. Therefore, we will only consider the CCL Fee and Dividend policy in this document. Note that HR763, *The Energy Innovation and Carbon Dividend Act of 2019*, is a CCL-type policy that lets the fee rise quickly to over \$100/ton and it is supported by CCL¹⁰.

⁸ <https://citizensclimatelobby.org>

⁹ <https://www.clcouncil.org>

¹⁰ <https://citizensclimatelobby.org/energy-innovation-and-carbon-dividend-act/>

Comparison of Fee and Dividend with Other Carbon Pricing Policies

Table 1 shows the major proposed carbon pricing policies and the benefits of each policy. In this section, we compare Fee and Dividend with other proposed carbon pricing policies.

Cap and Trade

Cap and Trade is the most common carbon pricing policy today. However, it is the one of the most complex to implement and the least effective policy in reducing greenhouse gas emissions. Cap and Trade was attractive to policymakers because it theoretically reduced emissions in a cost-efficient manner. It also attracted politicians by avoiding the word “tax” or “fee,” but the public soon realized the effect on fuel prices. Major emitters are required to buy emissions permits (under a “Cap” auction) but they may buy (“trade”) “offsets” from other parties who could theoretically reduce an equivalent amount of emissions at a lower cost. However, these alternative approaches are often questionable and usually involve future reductions while allowing current emissions. Another serious problem with Cap and Trade is that the carbon fee is never known in advance, can go up and down, and is quite volatile. Because of the volatile carbon fee, investors, industry, and individuals cannot plan actions today based on a known (or minimum) future carbon fee. Another issue with Cap and Trade is that because the money collected is almost always spent by the government (and not returned to the public), policymakers are careful to ensure that the carbon fee does not rise too high in order to avoid public backlash against rising energy prices. Also, Cap and Trade only applies to major emitters, so it does not cover the entire fossil fuel economy. For these and other reasons listed in Table 1, **Cap and Trade is the least effective carbon pricing policy.**

Cap and Dividend

Cap and Dividend is similar to Fee and Dividend except that the carbon fee is determined by an auction where the total fossil fuel extraction is limited by a “cap” that decreases each year. Like Fee and Dividend, all the money collected under Cap and Dividend is distributed as a dividend to every legal resident on an equal basis. Proponents of Cap and Dividend cite the “guaranteed” limit of emissions compared to Fee and Dividend. But while Cap and Dividend theoretically sets a limit on emissions, as discussed previously, it also sets a floor because if actual emissions ever drop below the cap, the carbon fee will collapse, and emissions will rise until they equal the cap. Of course, there can be limits on how much the auction price can drop, which makes the “cap” more like a “fee,” but the future carbon fee will still be unknown and volatile. **Because the future carbon fee is unknown and volatile under Cap and Dividend, there will be significantly less private sector investment in clean energy development and deployment compared to Fee and Dividend.** Also, because the fee is volatile (it can go up and down), the dividend payment to the public will also be volatile. This will reduce the economic benefit of the dividend and it will limit public acceptance of the plan.

Fee and Tax Offset

Fee and Tax Offset sets the fee like Fee and Dividend. But instead of distributing the collected money to the public on an equal basis, the collected money is used instead to offset the reduction of another tax such as the corporate income tax. There are two major problems with this approach. First, if the money is not distributed to the public, they will not accept a high (>\$100/ton-CO₂) carbon fee so **emission**

reductions will be far less than under **Fee and Dividend**, and (2) **Fee and Tax Offset** is extremely **regressive** in that it essentially has the poor and middle class pay for corporate (or other) tax reductions.

Cap and Spend

Cap and Spend (where the collected money is spent by the federal government, perhaps on clean energy initiatives) is similar to Cap and Dividend except that the collected money goes to US Treasury to be used for government initiatives. It has both problems associated with Fee and Tax Offset: the carbon fee will be limited and the fee will be regressive, hurting the poor and middle class relatively more than the wealthy. In addition, because it is a “cap” policy, it suffers from the fact that the fee is volatile and is not known in advance. Therefore, **this policy will be less effective than Cap and Dividend as well as Fee and Dividend.**

Fee and Spend / Fee and Block Grant

Fee and Spend (where the money collected is spent by the federal government, perhaps on clean energy initiatives) and Fee and Block Grant¹¹ (where the money collected is distributed to the states in the form of block grants, to use as they see fit) are similar. The fee is set as in Fee and Dividend, but the money collected is not distributed as dividends to the public. Therefore, it suffers from the fact that fee cannot grow as high as under Fee and Dividend, and the fee is regressive, hurting the poor and middle class more than the wealthy. The theoretical advantage of these policies (and Cap and Spend) is that the government can pour money into clean energy projects. But the higher carbon fee under **Fee and Dividend will drive far more private investment in clean energy solutions than the government will spend under these spend or block grant policies.** Other problems with these policies are that they pick winners and losers and they are not revenue neutral.

Comparison of Carbon Pricing Policies

Benefits	Cap & Trade	Cap* & Dividend	Fee & Dividend	Fee & Tax Offset	Cap* & Spend	Fee & Spend/ Block Grant	
Not regressive (doesn't hurt poor & middle class)	X	✓	✓	X	X	X	
Inherently Revenue Neutral	X	✓	✓	✓	X	X	
Doesn't pick winners & losers	X	✓	✓	X	X	X	
Covers entire fossil fuel economy	X	✓	✓	✓	✓	✓	
Puts theoretical ceiling on emissions	✓	✓	X	X	✓	X	
No limit on emission reductions	X	X	✓	✓	X	✓	
No middlemen/traders	X	✓	✓	✓	✓	✓	
Essential	Carbon price is not volatile (due to recessions, technology, etc.)	X	X	✓	✓	X	✓
	Carbon price is known in advance	X	X	✓	✓	X	✓
	Public will accept high carbon price (\$100+/ton)	X	✓	✓	X	X	X
Speed/Scale of emissions reduction	★	★★★★	★★★★★	★★½	★★	★★½	

* Assumes cap auction applies fully upstream
(at the well, mine, or port-of-entry)

Source: Dan Miller, ClimatePlace.org

Table 1.

¹¹ <https://www.climateadvisers.com/wp-content/uploads/2017/03/Rebuilding-America-with-Carbon-Grants-to-States-ecoAmerica-and-Climate-Advisers-Jan-2017.pdf>

Conclusion

The main cause of the market failure that created climate change is that the price of fossil fuels do not account for the large and growing “external costs” of climate change impacts (or the costs of air and water pollution from fossil fuels). It makes sense to correct this market failure by putting a rising fee on the carbon content of fossil fuels. But just increasing the cost of fossil fuels will have negative impacts on the economy and the public’s spending power. Therefore, by implementing a Fee and Dividend carbon pricing policy, that combines a steadily rising fee on the carbon content of fossil fuels with a distribution of the money collected back to the public as a dividend, the twin goals of a swift clean energy transition and a healthy economy can be met.

Fee and Dividend is the only carbon pricing policy that has the essential characteristics needed to dramatically and urgently reduce fossil fuel emissions: (1) the fee is known-in-advance, rises steadily, and is not volatile, and (2) because all the money is distributed as a dividend to the public, the public will accept a high carbon fee (>\$100/ton-CO₂). In addition, almost all the poor and middle class will earn more from the dividend than they pay in higher prices due to the fee, which promotes environmental justice. The policy is revenue neutral, does not pick winners and losers, does not utilize middlemen to trade questionable offsets, and is almost impossible to game. It is also the most simple, fair, and transparent carbon pricing policy.

Economic studies show that Fee and Dividend will be effective. Over a 20-year period, the policy is expected to lower emissions by more than 50% while creating 2.8 million jobs and growing GDP by \$1.375 trillion. And the GDP growth figure does not include reduced climate change impacts due to lower emissions, so the actual benefit to the economy will be far higher.

While many new policies must be implemented to address the climate crisis. The most important step is to align financial incentives with the climate outcomes we require. Fee and Dividend is the most effective way to put the proper financial incentives in place.

The *Energy Innovation and Carbon Dividend Act of 2019* (HR763) is a Fee and Dividend bill now before Congress. Passing HR673 and signing it into law will jumpstart US emissions reductions and create a just and vibrant clean energy economy.