

CLEAN TAX CUTS & DEREGULATION

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The Grace Richardson Fund
New Free Market Policy Solutions for 21st Century Challenges

INTRODUCTION

Welcome to the ground floor of a new idea.

And make no mistake, Clean Tax Cuts is a very new idea. First publicly launched this past Earth Day 2016 through a series of articles in *The American Spectator*. First public presentation in June, at the American Renewable Energy Institute conference in Aspen. Second airing at the American Sustainable Business Council Forum at the GOP Convention. Now this September, GRF, Rocky Mountain Institute, and the Sabin Center for Climate Change Law have co-convened a working group forum at Columbia University to study the concept in depth. CTC has evolved, from a simple a-ha moment in 2007, to an increasingly sophisticated, well-vetted, open-sourced policy concept.

Although new, the idea attracted high-level interest very quickly. Leading policy thinkers, like Amory Lovins at RMI, Eli Lehrer and Catrina Rorke at R Street Institute, Jimmy Kemp at Jack Kemp Foundation, Ted Nordhaus at Breakthrough Institute, and Jerry Taylor at The Niskanen Center, have all weighed in, at length, often as not through tough criticisms as perceptive suggestions, with a few pointed challenges to push the idea in directions not previously considered. All of which has served to make the concept stronger, more technologically neutral, broader-based, principles and parameters better defined and considered.

Still, it is new. Hence, this white paper will differ from most, which usually strive to offer a fresh perspective on policy concepts that have been analytically sliced and diced for decades. Clean Tax Cuts is too young for that, only at the stage where the revenue-neutral carbon tax was in 1973 when first conceived by my fellow non-economist and serial inventor, Prof. David

Gordon Wilson, an engineering professor at MIT. Forty-three years later, the carbon tax has proved fertile ground for countless economists, yielding innumerable articles, studies, economic models, books and indeed entire careers (sadly, often without awareness of the credit due to the honorable Prof. Wilson).

That sort of basic, pioneering economic work has yet to be done on CTC, and awaits only the right scholars to do it.

In the spirit of Prof. Wilson's pioneering thinking, on which CTC builds, GRF here presents a basic blueprint, laying out a theoretical foundation of a new positive supply-side policy to promote growth while simultaneously reducing negative externalities like ocean acidification or climate change. Our blueprint amounts to a good description of the basic concept, a tight *a priori* argument as to why and how it should work, some suggestive, very promising economic analysis (which while solid and respected, was not specifically undertaken with CTC in mind) and a discussion of possible design options to consider.

Like Tom Sawyer convincing his friends that it is actually incredibly fun to paint a fence, I hope to convince you that it is fun, and incredibly worthwhile, to build a powerful new climate and energy policy option, from the ground up, with a community of like-minded friends and colleagues. Consider this, perhaps, the 21st Century policy wonk equivalent of a pioneer barn raising. So please, come join in: tell us how to shape this idea, improve it, apply it to what matters most. The walls need raising, the roof beam lifting. We invite you, and gratefully welcome you, to join the very worthwhile fun.

*Roderic Randolph Richardson,
President, The Grace Richardson Fund*

EXECUTIVE OVERVIEW

The Grace Richardson Fund pioneers powerful new free market policy solutions for critical issues stuck in partisan gridlock. One such new idea, Clean Tax Cuts & Deregulation (CTC&D or just CTC), applies Ronald Reagan's supply-side tax cuts to the problems of pollution and climate risk. A conservative solution with transpartisan appeal, it offers something of highest core value for left and right: a climate fix *and* tax cuts; a clean environment, *and* less government.

Current climate policies – carbon tax, subsidies, regulation – sound to most conservatives like higher taxes and spending, more big government. It all sounds like a left-wing agenda, designed to punish “the bad guys,” sure to create economic drag, industrial destruction and job loss. Thus current policies unintentionally spark distrust, alarm, opposition and gridlock.

GRF would like to point out that there is another option, an all-winners no-losers way to cure climate change without punishing anyone or tanking the economy, simply by cutting taxes, spending and the size of government... by applying the most widely-adopted pro-growth policy in living memory, supply-side capital and income tax rate cuts, to the problem of climate risk. And it does apply. For climate change is a question of supply: supply of GHGs versus supply of clean energy, energy efficiency, and all other decarbonizing investments.

If you want more of something, tax it less. That is a basic supply-side principle from Economics 101. So all we have to do is cut marginal tax rates on all corporate, individual, capital gains, estate, dividend, and interest income for all decarbonizing investments (maybe some other related taxes too).

Doing so offers more bang for the buck. Especially when profits appear. Marginal tax rate cuts are potentially between five to ten

times more powerful than tax credit subsidies, as this paper will show. The reason is simple. Subsidies (which greatly complexify the tax code with routinely inconsistent and indefensible distortions) support many businesses that would otherwise fail, and these laggards compete with and slow down the leaders. Marginal tax rate cuts benefit only profitable companies, and the most profitable benefit the most. These are usually the low cost leaders, who, with tax rate cuts, keep the most profits, win the most new investments, grow much faster. Especially as laggards fail and stop competing. So Clean Tax Cuts accelerate the low cost leaders the fastest, much faster than do subsidies. This dynamic accelerates innovation and drives down the cost of good things, like clean energy.

But CTC is not just a niche tax cut for the clean energy sector. Being technologically neutral, it applies to every decarbonizing investment, product or practice, economy-wide. That includes energy efficiency, transformative profit-boosting fossil fuel innovation, carbon capture, storage and repurposing (as carbon materials, syndiesel, syngas, construction materials, soil, trees, etc.), regenerative sequestering land and sea use, carbon negative waste-to-clean-energy technologies, and more.

CTC avoids the problem of picking specific winners and losers among technologies by being as broad as reasonably possible, and by picking metrics instead. This paper (as well as an attached CTC white paper prepared by the Sustainability Accounting Standards Board) lays out a number of well known decarbonization metrics in wide use today, which could be used to assign tax rates.

From the supply-side perspective, the broadening of Clean Tax Cuts to include every decarbonizing investment should be regarded as a very good thing. For the broader the

supply-side tax cut, the more benefit for the economy.

Energy efficiency is itself a particularly interesting area to apply clean tax cuts. Especially from a conservative, supply-side perspective. Energy efficiency applies to every single corporation and taxpayer, from Walmart and Apple, to you and me. Efficiency metrics are already widely and easily in use by thousands of corporations and taxpayers. We can all become more energy efficient, and be rewarded by lower tax rates for so doing. Therefore, clean tax cuts for energy efficiency alone can deliver a broad, economy-wide supply-side tax cut for every tax payer, as a reward for doing something beneficial from any perspective, that is a profitable investment in any event. You don't have to believe in climate change to like the idea of more efficient, cost effective use of resources: economic efficiency is in fact, a conservative and capitalist virtue.

While decarbonization is important to climate risk mitigation, there are many other dimensions to "clean" and sustainable. CTC could secondarily target industry specific negative externalities. For instance, all hydropower might get a clean tax rate cut based on decarbonization, but low impact hydro projects that don't kill fish might get a lower tax rate than those that do. CTC is about more than just CO2.

Directing powerful capital investment flows away from negative externalities and toward positive-side "clean" practices via supply-side tax rate cuts is a new concept in economics, the fusion of supply-side and Pigovian economics,

balanced by equal measures of neo-Keynesian caution and pro-capitalist optimism. Not a small idea, positive supply-side CTC aims for a pro-growth policy capable of reducing and eliminating environmental, health and safety risks, ultimately turning capitalism into *clean capitalism*.

For fiscal balance, CTC&D specifies a maximum affordable cut limited by Harvard Prof. Greg Mankiw's calculation that a capital tax cut is half self-financing from new growth. The other half most beneficially should come from spending cuts to subsidies and regulations. If Prof. Mankiw is right, we can afford up to \$2 clean tax cuts for every \$1 of subsidies and regulations cut, and still be self-financing from growth, with potentially 10X more new decarbonization investment. However, even if we did a very cautious ratio of \$1 tax cuts to \$1 subsidy and regulation spending cuts, we would still have a highly beneficial effect on both GDP and new decarbonization investment (potential 5X increase), with net positive revenue.

So we can take a very fiscally cautious approach, matching tax cuts to spending cuts, still get a powerful GDP and CO2 benefit, and possibly even reduce the deficit.

Since the benefit of the switch is so powerful, it is likely many companies would opt to do it voluntarily. So to the extent CTC can substitute for and eliminate subsidies, we have just massively cleaned up the tax code... with taxpayers doing the switch voluntarily.

Quadruple win? Wait... quintuple?

Clean Tax Cuts & Deregulation Defined

To accelerate innovation in a positive direction, Clean Tax Cuts are primarily marginal tax rate cuts to all taxes on all capital returns from all decarbonizing investments, combined with spending cuts to subsidies and regulation. CTC&D balances and links tax and spending cuts in a certain ratio, to avoid increasing the deficit, to reduce taxes, spending and the size of government simultaneously, while simplifying and making the tax code a more efficient and powerful tool for decarbonization and growth.

While the focus of this white paper is on decarbonization and growth — via what might be called a “carbon tax cut” — we note that CTC may also usefully target reduction of other kinds of industry specific negative externalities beyond those related to carbon emissions. Investments that reduce negative externalities are herein referred to as “clean” as a reasonable shorthand.

CTC adheres to the principle of technological neutrality, which means that not only must all energy sources be encouraged to participate on an equal basis in the drive to low-carbon emissions, but all other decarbonizing investments must be included as well to avoid distorted decarbonization.

Decarbonizing investments include all energy efficiency practices, products, vehicles, property, plant and equipment, etc., clean energy (low, zero, or negative GHG emissions), fossil fuel innovation that lowers emissions, all GHG capture, sequestration and recycling via emissions-reducing carbon materials technologies, and any other decarbonization technologies that may exist now or arise in the future.

To further avoid the pitfall of picking specific winners and losers, CTC would pick metrics instead. Many such metrics are already widely

in use (Energy Star, LEED Certification, Corporate GHG accounting protocols, CDP scoring, etc.) and could be adapted to set tax rates, as discussed further below. Companies, even new technologies, would self-report auditable metrics on their tax reporting, honesty assured by existing stiff penalties for tax fraud, applicable both to companies and accountants.

CTC cuts rates on the following capital taxes for clean investments: income, corporate income, capital gains, dividend, interest, and estate taxes. This white paper primarily considers these kinds of cuts, since they are at the core of the concept. However, it is useful to point out that there are other kinds of tax rate cuts, or capital tax cuts, that might be considered as well:

Clean Capital Expensing: Accelerated depreciation has a strong effect on accelerating capital investment, which tends to have some decarbonizing effect as technological efficiency increases. Immediate write-offs for the most decarbonizing or energy efficient investments would strongly increase this decarbonizing tendency, and also have a strong growth effect. The natural spending cut to offset this powerful tax rate reduction would be other business tax credits and subsidies.

Clean Repatriation: Michael Kinstlick, Head of Standards Setting at the Sustainability Accounting Standards Board recently suggested: “Estimates of the cash US corporations are storing overseas to avoid corporate tax are on the order of \$1.5T. Yes, Trillion. What if we allowed them to bring that cash home tax-free if it were invested in green energy production?” Thank you Michael, for a great idea. I suggest we allow such firms to invest in any highly decarbonizing investments of their choice, to insure balanced decarbonization. Clean Repatriation could also prove a powerful incentive for international corporations to give up many other less efficient subsidies and tax incentives, aiding with efforts to clean up the tax code.

Other Clean Tax Cuts: CTC could include payroll tax cuts for clean investments, which would have the benefit of attracting more human capital to decarbonizing investments, and improving middle incomes along with decarbonization buildout. At the state level or internationally, CTC may include property, sales taxes, and tariffs. However, it is doubtful that any of these would have as large a growth effect as capital tax cuts. Still, worth considering.

Clean Tax Cuts could also beneficially apply to all companies and taxpayers up and down each decarbonizing value chain. For instance, CTC could apply not just to energy producers, but to producers of all technology that makes, transmits, stores and manages that low emission energy, the contractors building out the plants, grids and storage/management facilities, and the utilities that resell that clean energy. The same would be true of value chains for energy efficient products, like plug-in hybrid vehicles, not just the manufacturers, but their suppliers and resellers, etc.

By increasing returns for all decarbonizing investments, and all parts of the value chain (not just wind and solar energy producers) CTC would create a very powerful and well balanced decarbonization, and a strong positive “lift” for the entire economy: a very powerful, broad based supply-side tax cut drawing capital towards positive innovation.

CTC&D’s far more balanced decarbonization, would be less prone to intermittency issues and baseload destruction sometimes produced by distorted subsidy and regulation regimes, as discussed below. Also, while some carbon tax advocates seek the outright destruction of the fossil fuel industry, CTC instead boosts the profitable transformation of fossil fuels into a carbon materials and lower emission — even eventually, clean — energy industry through fossil fuel innovation.

As discussed herein, precise tax rates used for clean tax cuts (balanced against spending cuts)

will need to be determined by economic modeling, and later refined by actual experience. However, since, as discussed herein, clean tax cuts are a more powerful tool for attracting new investment and generating new taxable growth than are subsidies, and since, as we will show, taxpayers can afford to offer investors more in the way of clean tax cuts than subsidies without increasing the deficit, then it is very likely that clean tax cuts can be introduced voluntarily, as it will be advantageous for companies to make the switch. Hence CTC&D could trigger the voluntary abandonment of inefficient tax code distorting subsidies, which are worth less, and less powerful too.

What Clean Tax Cuts is NOT

Some people read “Clean Tax Cuts” and think “clean energy tax credits.” That would be a misunderstanding. On two counts. First, Clean Tax Cuts are not just about clean energy. Second, Clean Tax Cuts does not include the use of tax credits, which are subsidy price supports. (Possible exception: tradable clean tax credits might be useful for non-profit organizations.)

Clean energy tax credits exist in many inconsistent forms right now, have many drawbacks, and are not a new policy concept. That said, uniform, metric-based, technology neutral clean energy tax credits would be an improvement over current policy, and could have some limited use for strategic but unprofitable technologies.

Why Clean Tax Cuts?

All current climate policies have moderate to severe drawbacks, both economic and political, which limits their effectiveness. Ironically, policies intended to promote sustainability and

end negative externalities have their own negative externalities that harm their own political and environmental sustainability.

Alternatives that can potentially overcome these problems, such as Clean Tax Cuts, must be carefully considered and developed if we are to overcome the challenges of negative externalities without stifling prosperity.

To summarize the drawbacks of the three major climate policies

Subsidies support many businesses that would otherwise fail, allowing the worst to compete against and slow down the best. So subsidies fail to maximize target sector growth, but also slow down overall GDP growth. They raise (but hide) real prices, creating a distortion, and create dangerous dependency bubbles, which could collapse, greatly harming the economy. Very inconsistently applied across competing industries, subsidies support fossil fuels without justification, and wind and solar preferentially over other decarbonizing investments (despite the fact that both wind and solar are now becoming profitable without subsidies) leading both to charges of cronyism, and to actual economic distortions that create market failures.

Regulations interact with these distorted subsidies to create a distorted decarbonization, often making the market failure worse. RPS mandates, for instance, also favor wind and solar over other decarbonizing investments, such as energy efficiency, energy storage, grid upgrades, fossil fuel innovation, nuclear baseload generation, and newer, carbon-negative baseload generation technologies like waste-to-clean-energy gasification. The result is to destroy vital baseload generation, (sometimes coal, but often carbon-free nuclear power, requiring more coal or gas plants be built), which then exacerbates the intermittency problems of renewables, resulting in spiking energy prices

that destroy local industries, as in South Australia. (Clean Tax Cuts, applying equally to all the above decarbonizing investments, would produce a very different kind of decarbonization. More efficiency, storage, transmission and emission-lowering baseload innovation, would greatly reducing intermittency issues and baseload capacity destruction, while lowering energy costs.)

Regulation also is very expensive (\$2.028 trillion for the US in 2012) and significantly anti-growth, slowing GDP growth from 0.8%, up to a full two percentage points, depending on which study or time period one considers.

Carbon Tax (or Fee and Dividend), while popular among climate activists, remains persistently unpopular among elected politicians, rendering it widely ineffective in practice, regardless of theoretical effect. A carbon tax, though creative and perhaps effective economics, creates entrenched opposition because it appears punitive – its stated goal to kill all fossil fuel industries – leaving millions highly motivated to fight back. By raising taxes, it further alienates conservatives, who are allergic to the word “tax” unless followed by the word “cut.” And the likely impact of a tax on energy – higher energy prices and economic drag – alienates even more voters.

To overcome these problems, every carbon tax proposal comes with a *caboose*: a proposal for what to do with the revenue. A dividend or tax rebate for all. Corporate tax cuts. More subsidies for renewables, nuclear and hydro. Worker retraining. A payroll tax cut. R&D. Debt reduction. Rescue for Social Security or Medicare. The problem is, what was advertised as a simple solution quickly morphs into a complicated exercise in picking losers and lucky winners. And there is no guarantee that any political compromise of linked-together caboose policies (cabeese?) will actually solve the fundamental anti-growth and inflationary tendency of a carbon tax.

The most likely caboose to be included, if ever a carbon tax did become law, is some sort of public dividend for all, as this is popular among Democrats without whom a carbon tax will never pass. Yet this dividend would have only a weak growth effect, likely not enough to overcome the anti-growth effect of a carbon tax, while exacerbating the inflationary effect.

Worse, this most-likely caboose could make a carbon tax completely ineffective. There is a high risk that once the public receives dividend checks, they are going to demand the dividend checks continue forever. Any policy to raise the carbon tax so high it kills the fossil fuel industry, thus ending the dividend checks, quite likely will meet with outraged opposition from those counting on the checks. The likely political compromise could be a carbon tax set at the highest possible level that maximizes revenues and preserves the fossil fuel industry forever.

And if the carbon tax does dodge that bullet and successfully kills the fossil fuel industry, then any caboose eventually becomes an unfunded liability ballooning the public debt.

There may be a legitimate case for some kinds of subsidies or regulations to boost unprofitable

but promising or strategically important technologies. Same for limited carbon taxes. In states with little fossil fuel industry presence, carbon tax induced social friction will be less, so a carbon tax might be a successful trade off for sales and income taxes. Or nationally, after doing all we can with Clean Tax Cuts, a limited carbon tax might be a reasonable funding source to fund some useful climate change, pollution and fossil fuel related expenses: infrastructure, R&D for low emission energy, aid for flood and severe weather impacts, environmental damage mitigation, etc.). Other than these low-friction carveouts, these policies have severe drawbacks that limit their macro effectiveness.

Current climate policies raise taxes, spending and the size of government. They block, distort and coerce capital flows. In so doing, they lead to unbalanced decarbonization, harm the economy, and come across as punitive, inept and heavy handed, and so generate political friction and polarization, damaging the harmony of the nation. In sum, they undermine their own effectiveness and sustainability. So, we must ask: is there a better way?

How to Sail the Ship of State...(better)

Capital flows are a lot like water flows, or wind flows.

At some point in the early first millennium, sailors switched from using square sails, which used the direct pushing force of the wind on the back of the sail (called “drag” force in physics), to using “lanteen,” or triangular sails, which could use both direct wind force pushing on the back of the sail, and also the newly discovered “lift” force, pulling on the front side of the sail.

Lift is created by wind flowing over a curved surface creating a low pressure vacuum pulling the sail forward as air molecules spread out as they are forced to accelerate and travel further around the curve of the sail. Essentially, the vacuum reduces a barrier – the pressure of the air molecules – and the boat is literally sucked into the area where the barrier has been reduced.

Lift is a very potent innovation, a powerful, invisible force allowing ships to sail not only faster than by using drag force, but also allowing the ships to sail with more finesse, in more directions, across or into the wind, rather than just downwind. So powerful that eventually, men figured out how to harness lift to make huge machines fly, up, into the sky.

Capital flows are a lot like wind flows. Taxes, including carbon taxes, create a drag force, essentially slowing down the flow of capital, like wind hitting a sail head on. Tax rate cuts create

a “lift” force, dropping barriers, which accelerates the flow of capital. Tax rate cuts literally “lift” the economy, sucking the capital in the economy towards the draw of higher returns, accelerating it powerfully in the direction of the tax rate cut. Just as lift allows boats to sail with more finesse and power in the direction the captain chooses, the lift of tax rate cuts can also be targeted to steer the economy powerfully in a positive direction.

And guess what? Lift is stronger than drag. All expert sailors know that you maximize speed when you set the sail to maximize lift, not drag. In aircraft design, a higher lift:drag ratio is the goal of advanced wing design, delivering better climb performance, glide ratio and fuel economy. The reason is, maximizing lift while minimizing drag reduces friction.

So maybe the same is true of the lift from tax cuts? Maybe maximizing lift in a positive direction through tax rate cuts would make good socio-economic design as well, reducing social friction, powerfully accelerating positive innovation, healing the polarization of society.

So subsidy, regulation and carbon taxes (or hybrids of all three, like cap & trade) are not our only options. We can work with the other side of the sail, so to speak. We can use lift instead of drag. We can work on the positive side, not the negative side. We can work on the supply-side, not the demand side. We can use tax cuts, not taxes. Spending cuts, not spending. Less government, not more.

Like the sailors of yore, we have promising new options to explore.

The Positive Economics of Capital Tax Cuts

The Clean Tax Cuts idea departs from current climate policy by suggesting we focus, not on beating down the negative externality (as does carbon tax and regulation), but on boosting capital flows to the positive externality; not on propping up the demand side at public expense (as do subsidies and other regulations), but on profitably dropping barriers to capital flows on the supply-side. That boils down to using marginal tax rate cuts to all capital investment taxes for all clean decarbonizing investments.

Why this focus? Because lift is stronger than drag, and involves less friction. Just so, capital tax rate cuts, by simply dropping barriers to capital flows, are a more powerful growth tool than other policy options, and reduce friction. That means less political opposition, less gridlock, more harmony, more profit, more effective, sustainable policy.

Capital tax rate cuts deliver a powerful growth effect because they amplify and accelerate the normal capitalist growth process of creative destruction, promoting leaders faster without supporting failures. Capitalism is the most powerful growth engine we have, and capital tax rate cuts are the most powerful tool we have to accelerate that engine. Since capital tax rates are what capitalist investors look at most directly, those are the tax rates cuts that are likely to have the biggest, fastest effect on investment growth.

Economic studies bear this out. Many influential economists, leaning Republican or Democrat, conclude tax changes (especially capital tax rate changes) have a significant impact on growth. Tax policy often reflects that basic understanding. Tax increases, such as the carbon tax, have been proposed to reverse the growth in fossil fuels. Marginal tax rate cuts have been used frequently to promote growth,

notably under presidents Kennedy, Johnson, and Reagan.

You know there is some sort of high level bi-partisan agreement on this basic point when you read the former Chair of Bush's Council of Economic Advisors, Harvard Professor Greg Mankiw approvingly citing research of former Chair of Obama's Council of Economic Advisors, Berkeley Professor Christina Romer: "[R]ecent research by Christina Romer and David Romer looks at tax changes and concludes that the tax multiplier is about three: A dollar of tax cuts raises GDP by about three dollars." The Romer study also finds that every \$1 of tax cut raises private investment by \$11. That is eleven times the bang for the buck compared to the government spending \$11 directly.¹

Compare that to a standard 30% price support like the ITC, where \$1 of subsidy brings in \$2.33 of new investment. \$11 vs \$2.33? This suggests that capital tax rate cuts, dollar for dollar, attract nearly 5X more new investment than do price support subsidies.

The Romers' conclusions are broadly in line with that of Mankiw's Harvard colleague, Robert Barro, one of the most cited and influential living economists. Barro finds that cuts to marginal tax rates are superior to government spending in promoting growth. Barro writes: "a cut in the average marginal tax rate by one percentage point raises next year's per capita GDP by around 0.5%."² So, to put that in perspective, a 10 percentage point cut in average marginal tax rates might be expected to raise the economic growth rate 5 percentage points the following year.³

Mankiw, in his own work, finds that capital tax cuts are among the cheapest ways to promote growth, noting that "half of a capital tax cut is self-financing." By comparison, Mankiw finds that labor tax cuts are only 17% - 30% self-financing, depending on the elasticity of labor supply.⁴

Of particular relevance to CTC&D, is another Mankiw observation: "Tax relief is good for growth, but only if the tax reductions are financed by spending restraint. One exception: Lower taxes on dividends and capital gains promote growth, even if they require higher income taxes."

So, if Mankiw is correct, to the extent CTC&D can replace spending on subsidies and regulation, they will be particularly effective at producing growth. And to the extent they target dividend and capital gains taxes, they will be even more extremely effective at promoting growth, even if they do not cut spending on subsidies or regulation right away, or require some taxes elsewhere.

The Mankiw Formula and CTC Fiscal Balance

Mankiw's above calculations are extremely important for Clean Tax Cuts design parameters. They suggest a formula for insuring that CTC will never increase the national debt, and describe an upper limit of how much clean tax cut may be prudently afforded by the US economy, without increasing debt or taxes.

If a capital tax cut is half self-financing, then \$2 of capital tax cuts can be paid for by \$1 of tax revenue from new growth, plus \$1 of spending cuts from eliminated subsidies and regulation.

**\$2 Capital Tax Cuts =
\$1 New Revenue + \$1 Spending Cuts**

That formula allows us to cut taxes, spending, and the size of government, and still have a powerful impact on decarbonization without adding to the national debt.

How powerful? The implication from the Romer study is that dollar for dollar, capital tax rate cuts can attract 5X more new investment than the

ITC subsidies. *But if \$2 of capital tax cuts replaces \$1 of subsidies plus regulation, then the switch to CTC will be at least 10X more powerful than subsidies in attracting new investment.* More so, since subsidies are only part of the spending cut, then in this scenario, \$2 of capital tax cuts replaces *less than \$1* of subsidies.

However, this ratio is probably the outside limit of what should be attempted, and the Mankiw formula should be regarded as *suggesting* a range of safe ratios (tax cuts/spending cuts) for CTC policy design. Recall that labor taxes are only about 23% self-financing, as a mid-range estimate depending on labor elasticity. Writing elsewhere, referring to his study, Mankiw writes "a broad-based income tax cut (applying to both capital and labor income) would recoup only about a quarter of the lost revenue through supply-side growth effects." So that implies a ratio of \$1 of tax cuts/\$0.75 of spending cuts.

**\$1 Mixed Tax Cut =
\$.25 New Revenue + \$.75 Spending Cuts**

To be even more ultra conservative, we could use a ratio of \$1 tax cuts/\$1 of spending cuts, and we could still be roughly 5X more powerful than subsidies, and reduce the deficit to boot.

The point is, CTC&D can be introduced in a fiscally safe manner, and still be very powerful for decarbonization, growth, and deficit reduction, staying within the guidance proposed by the Mankiw formula. Clean tax rate cuts can then be deepened over time, for even more powerful decarbonization and growth, as policy makers see the actual ratios of tax cuts to revenue and growth reported over time.

CTC Launch: Voluntary, Leader-Driven

Since the Mankiw formula means more tax cuts dollars replace fewer subsidy dollars with fiscal

balance, and since those tax cuts attract far more new investment than subsidies anyway, then the switch from subsidies to CTC&D is a really good deal for decarbonizing companies and industries, more powerful and worth far more than current policy. This is especially true for the most profitable industry leaders and tech innovators, who will grow faster and more profitably under a clean tax cuts system than under subsidy schemes.

Therefore, CTC&D can be introduced voluntarily. The most profitable leaders in each industry will likely adopt CTC&D quickly, forgoing subsidies voluntarily because the value of the tax cuts is greater. When adoption reaches a certain level, say 20% of an industry or sector, then the whole industry or sector, the entire value chain, switches over to CTC&D, and that triggers broad deregulation and de-subsidization as well.

It is quite possible that in order to maximize the value of the clean tax cuts, companies would be willing to part with other subsidies and tax deductions, not related to energy, because deeper clean tax rate cuts would be worth more to the company than those complex tax breaks. Especially if CTC includes powerful incentives such as Clean Capital Expensing and Clean Repatriation. CTC&D could be a strategy to voluntarily wean the American tax code off of all manner of complex tax breaks, in favor of a more uniform Clean Tax Code. Full analysis of that possibility is beyond the scope of this white paper, but worth further investigation.

Positive Supply-Side Economics?

CTC creates the same basic tax differential between high and low emission investments as does a carbon tax, but in a manner that works entirely by lifting capital flows to positive externalities, rather than by suppressing cash flows to negatives externalities.

In both cases, money wants to flow. The key difference?

It is easier to go with the flow, than to fight the current. It is easier to encourage people to do more of what they already want to do, than to stop people from doing what they really want and need. That is why CTC should be politically easier and economically more powerful. That is why working on the positive side is inherently easier, more efficient, more powerful. Less friction.

In terms of economic theory, CTC fuses elements of both supply-side and Pigovian economics, to solve problems with both.

Supply-side tax cuts boost growth powerfully, but also boost free riders along with everyone else, and so contribute to the problems of negative externalities. Which leads to the criticism of free market capitalism that it may generate wealth, but also simultaneously devastates the environment and health. (Not a completely correct criticism, but not entirely wrong either.)

Pigovian taxes, like the carbon tax, seek to solve the problem of negative externalities, by taxing the negative externality directly in order to suppress demand. But all such taxes create economic drag and raise prices, reduce growth and employment, and can kill industries. Therefore they create their own political opposition and gridlock.

CTC fixes the drawbacks of both supply-side and Pigovian economics by combining them. By acting positively on the positive supply-side (to lift cash flows to the positive externalities), positive supply-side tax cuts offer a powerful pro-growth tool for eliminating the problem of negative externalities. At once it avoids the tendency of Pigovian taxes to raise prices and slow growth, and the tendency of pure supply-side tax cuts to allow negative externalities and free riders to befool the otherwise admirable achievements of capitalism.

It should be no surprise that by deliberately acting positively on the positive-side, the result is an all-positive policy, that punishes no one, that reduces all harm. All carrot, no stick, positive supply-side tax cuts offer a profitable path to clean capitalism.

CTC&D adds a neo-Keynesian element to this synthesis as well. Prof. Mankiw's calculations of the revenue growth effects of capital tax cuts are much smaller than the overly optimistic claims of some of the early supply-siders, and indeed form part of the neo-Keynesian critique of those supply-side claims. As such, it seems prudent to accept Mankiw's more cautious calculations, and embed them into the design of CTC&D, as guidance for a range of ratios of tax cuts to spending cuts. If CTC&D stays within that range, we should not add to the deficit.

It is worth noting that the CTC&D approach, limited by the Mankiw formula, sidesteps the problem of carbon pricing. The problem being that the "price of carbon" is not a true market price like the price of copper, but rather a collection of widely varying estimates driven by differing assumptions about unknowable future events over which there is great disagreement. It is one of those numbers in math, science and economics where, we are pretty sure there must be a correct number, but no one quite agrees what that is. A lot like the optimal tax rate on the Laffer Curve, for instance, were estimates of economists range from roughly 10% to 80%.

The CTC&D approach is simpler: we know we want decarbonization, and we want as much of it as we can afford without killing our economy. The Mankiw formula could be used to model and show us how much we can afford by cutting spending on subsidies and regulations, without raising taxes or the debt.

That kind of modeling is yet to be done, and will require additional expertise. Such analysis will help us determine the precise clean tax rates we can afford.

Stronger Than a Carbon Tax?

Modeling and experience will also tell us whether CTC&D alone is sufficient to stay within the 2°C target. Hopefully, likely yes, because of the powerful growth effect it targets at decarbonization.

If you believe a carbon tax can stop climate change, then understand there is every reason to believe Clean Tax Cuts will be more powerful than a carbon tax.

First understand why it would be at least as powerful. Clean Tax Cuts sets up the same tax differential as a carbon tax, but by cutting rather than raising taxes. If it is the same tax differential, then it stand to reason it would be comparably powerful.

Second, CTC is likely to be MORE powerful than a carbon tax. Why? Because many economists believe sales taxes will harm growth less than income taxes, especially capital taxes. Another way of putting this is that sales taxes have less impact on growth. Which why some supply-side economist think a trade off of a carbon tax (which is a sales tax) for supply-side tax cuts would be a good deal. Sales taxes harms the economy least, capital tax cuts benefit the economy most.

The point is, a carbon tax has LESS impact than capital taxes, against growth, as a tax, or pro-growth, as a tax cut. Therefore, using capital tax rate changes will be a stronger tool against climate change than using sales tax rate changes, dollar for dollar. The tax multiplier effect is greater. So Clean Tax Cuts will be stronger than a carbon tax, dollar for dollar. And far better for GDP growth.

So if a carbon tax is, as some think, an effective tool for climate change, then Clean Tax Cuts would be more so.

Diehard carbon tax advocates may beg to differ, but there is a strong argument why CTC&D

should be the first fiscal line of attack on climate change. It is stronger, more purely economically beneficial, less socially fractious, politically easier. It should take the lead, be the steady, friendly workhorse that gets the job done without causing problems.

Only if CTC proves itself not quite up to the job should an incremental carbon tax be considered. First, as a revenue source for infrastructure, climate impact mitigation and clean energy and decarbonization R&D. If that does the trick stop there. If not, one option could be to pay for deeper clean tax cuts by adding more carbon tax, for a powerful double barrel effect, working both supply and demand sides, boosting positives and suppressing negatives simultaneously. Fortunately, in that case, CTC would counter most of the social friction and economic drawbacks arising from a carbon tax.

CTC can reduce, and perhaps eliminate any need for a carbon tax. That should be welcome news, and the extent possible should be carefully studied.

Metrics and Sectors

Technologically neutral, CTC seeks to reward all decarbonizing investments on an equitable basis across the entire economy, with tax rate reduction tied to the degree of decarbonization. The good news is there are already a variety of well known metrics already in use that could be adapted to that task.

For instance, more than 5,500 corporations voluntarily disclose GHG accounting data to CDP (formerly Carbon Disclosure Project). CDP scores corporations on GHG reduction using the Corporate Standards developed by the World Resources Institute GHG Protocol, which is widely considered the global standard for GHG accounting. CDP issues grades, 1 - 100, grading disclosure practices, and A through E,

measuring how effectively a company is addressing climate risk.

A corporation's tax rates could be lowered according to their CDP score. This method has the advantage of simplifying all decarbonization considerations for a complex corporation (fleet efficiency, energy intensity of operations, use of renewable energy, etc.) into one final score. And we know it is not overly burdensome, as 5,500 corporation already voluntarily disclose this information.

Alternatively, if some corporations and taxpayers find it simpler to receive tax rate reductions for separate components of decarbonization at the project or product level, the EPA's well known Energy Star Program, or alternatively, LEED Certification ratings, measuring efficiency for homes, buildings, industrial plants and consumer products, could be used to set benchmarks for energy efficiency gains that merit tax rate reductions at that level.

So we have lots of metrics we could use. However, it is not clear if one single, simple metric will cover everything. But perfection is the enemy of the good, they say. It may be that different sectors and kinds of decarbonization are more simply and easily measured by sector specific metrics.

Indeed that is exactly the approach suggested by the Sustainability Accounting Standards Board (SASB) in their white paper "SASB Overview for Clean Tax Cuts Concept." Their key point being, some metrics are more material for some sectors than others.

To the end of setting CTC tax rates, the SASB paper examines how SASB metrics can interact with the Sector Decarbonization Approach (SDA), a methodology developed by Science Based Targets, a partnership between CDP, UNGC, WRI, and WWF, "for the calculation and comparison of individual company performance with respect to greenhouse gas intensity (carbon emitted per unit of industry-specific activity)."

The paper concludes: “The combination of SASB’s reporting metrics with SDA’s approach may offer a pathway through which the Clean Tax Cut Concept can differentiate participants within an industry. By calculation of a company-specific carbon intensity per the methodology described above, a basis for comparison can be established among industry participants.”

SASB analyst David Parham offered further insight in correspondence exemplifying the use of SASB metrics:

Basically, I was thinking a “carbon intensity” metric might be appropriate for differentiation of companies within an industry (note that this synergizes well with SASB’s industry-based approach)... As an “intensity” based metric is a ratio of two values (how well are you able to do A with respect to B), it felt like a good fit for this [CTC] concept. For a company in a given industry, how well is it able to produce A with respect to emissions B, how does it compare to its peers, and how does it compare to the industry average? Further, how are these values changing over time? Is a company improving relative to its peers? Is the industry improving? Are certain companies outpacing the industry gains, and are others falling behind the curve?

For the power generation industry, the metric we had discussed was a ratio of greenhouse gas emissions to power produced. The SDA metric “activity” measure for the power industry is power produced so this would actually be pretty much exactly aligned with what we had discussed initially.

Regarding company and industry based measurements, I believe the SDA approach might offer a framework where

an industry-specific ratio (emissions per output) could be defined that make sense for the “output” of each industry – energy, power, consumption, transportation, etc. As we had discussed, individual company performance could then be compared to an industry average value. These values could be calculated annually, industry participants ranked, and performance against the baseline tracked. This is essentially what the SDA is suggesting, but framed to track performance against 2DC targets.

For CTC, as previously discussed, the industry progress over time (emissions per output) could be tracked, and individual company performance against the industry could be tracked and stratified for the purposes of assigning tax rate cuts.

So, for the power sector, the metric might be total Scope I emissions divided by kWh of power produced, for example. For power companies using more coal relative to natural gas, this number would be relatively high. Substituting natural gas would produce the same amount of power with lower emissions, leading to a higher “score.” The benchmark would reflect the industry average.

As noted above, as the industry is incentivized to produce cleaner energy based on CTC, the industry average would be driven down. If designed correctly, this could create a natural motivation for companies to continually improve as companies seek to “keep up” with the industry average for the purposes of access to CTC tax rate cuts.

Following this suggestion, CTC might offer a range of rates corresponding to rankings of

emissions per output. How deep the range would go (from existing tax rates down to 25%, 20%, 15% or 10%, for instance) would need to be set by the analysis of what rates can be afforded by cutting subsidies and regulations. The lowest emitting technology or company would win the bottom rate, and anyone under the sector benchmark (either sector average or something else) would get rate reduction according to ranking.

The competition for better rankings and tax rates should make entire industries and sectors, indeed the entire economy more energy and carbon efficient over time, at an accelerated rate versus current practice. Benchmarks will move, as industry and sector averages improve. That should be a powerful way to turn capitalism into *clean capitalism*.

A question deserving further study: How should CTC award tax rate cuts to companies that make: (a) energy efficient products; (b) clean energy technology, like solar panels, wind turbines, waste gasifiers; (c) storage and transmission, resilient grid management systems; (d) fuel efficient vehicles vs electric vehicles; (e) fossil fuel innovations like those of ZHRO.com (f) construction companies, contractors and architects that build energy efficient, low emission buildings and plants?

Such companies, while not necessarily clean energy producers themselves, are decarbonizing in at least two different ways: 1) from reducing carbon intensity of their own operations; 2) from the reduced carbon emissions or intensity resulting from the use of the products they produce. We certainly want to reward them for both. That implies a derived CTC tax rate, with a component from both considerations.

A derived rate also suggests that each product's profits might have a separate CTC rate depending on some metric (such as GHG emissions/Kwh for things like wind turbines, GHG emissions per mile for vehicles, Energy Star Rating for appliances, LEED Certification

rating for buildings, etc.) relative to a benchmark, such as an average for the industry or the sector.

So a manufacturing company's CTC tax rate (for all associated capital returns to investors as well) would be derived from (a) a rate reduction awarded for a score for carbon intensity of operations relative to a sector benchmark; (b) a weighted-average rate reduction for all product profit streams, based on a energy or carbon efficiency score for each product. How to accomplish this most fairly and simply will be the subject of further study.

Electric vehicles, as well as electric storage, transmission and grid management contribute to decarbonization in a manner that might be difficult to calculate. Such technology is only as GHG free as the power source. A coal powered Tesla has a very different GHG profile than one powered by nuclear or solar. However, all of these technologies allow the grid to better accommodate more intermittent renewable energy sources with better supply and demand management, and less risk of power shortages. Together, they should help lower the carbon intensity of the overall US electric market, and improve national energy security and resiliency. Especially if the entire power sector is powerfully incentivized to decarbonize by Clean Tax Cuts.

Therefore there is a strong argument to award these technologies low CTC rates because they assist overall decarbonization and resiliency of the power sector, even if that is not measured in their emissions equally in every region right away.

Fossil fuel innovators (which are disadvantaged by the current distorted subsidy regime) deserve CTC rate reduction since they help reduce fossil fuel emissions and help transform the fossil fuel industry into a carbon materials and clean energy industry. ZHRO, for example, reduces emissions for trucks, with a diesel-to-compressed-gas conversion kit. A reduced

CTC rate could be awarded for profits from the kit, based on how well the ZHRO kit reduces truck emissions below the industry average, versus competing products.

ZHRO's other product is a system which captures flare gas from oil or gas wells (reducing emissions there), splits flare gas into methane (which can power well production systems, reducing emissions from grid power), and splits the junk gasses into carbon fibers and clean H₂, used to produce clean power or fuel cells. This product's profits could receive a reduced CTC rate based on how well it reduces gas and oil production emissions below the industry average, versus competing products. In addition, well operators who purchase the ZHRO system would see their taxes reduced as their carbon emissions drop below industry averages, and the carbon materials and clean energy they sell would receive the lowest CTC tax rates.

These are preliminary suggestions as to how CTC might be applied in practice, using available metrics. GRF and CTC working group participants welcome helpful suggestions and comments.

Deregulation & De-subsidization

Not surprisingly, the regulatory reforms and subsidies cuts contemplated by CTC are nearly identical to those proposed by some carbon tax advocates. The Niskanen Center, for example, rightly points out that a powerful, market driven solution to climate change would allow the termination of inefficient, expensive and distortionary subsidies and regulations. They have done a wonderful job of cataloging the many programs worthy of the chopping block. Since there is no added value in GRF reinventing the deregulatory wheel, we gratefully refer readers to their excellent work on the subject.

An excerpt from their most recent “Carbon Tax 2017” presentation is attached, covering programs to be cut.

Conclusion & Next Steps

Reason and some solid evidence suggests that Clean Tax Cuts & Deregulation could be a powerful way to accelerate both clean innovation and growth: decarbonization with more profit, less cost and less government. To date, even the strongest critics of CTC acknowledge it could be more politically appealing across the spectrum than other climate policies. And no critic has yet been able to offer a sustainable argument that it would not be effective, powerful, growth oriented, or feasible.

So far, so good.

But more work needs to be done. CTC must be modeled, for economic and climate impact. Also, for design purposes. How much inefficient energy and climate spending can we cut, and how would that translate into how much Clean Tax Cut we can afford? How much other non-energy spending and tax code subsidies can be chopped away, so we can afford even more powerful decarbonization?

Metrics and how they should be most simply and effectively applied could use further study, and input from a variety of experts. Other kinds of decarbonizing investments also need closer consideration, such as regenerative agriculture and forestry, or air capture, or waste-to-energy gasification. Clean Repatriation and Clean Capital Expensing should be further explored, as should the application of CTC to payroll taxes, and state-level property and sales taxes.

International applications need to be considered. Would it be easier to set a global clean tax cap — a global maximum tax rate for decarbonizing investments — than to negotiate

other kinds of climate treaties? How should CTC interact with tariffs and trade agreements? How might it apply in other countries?

How might or should CTC apply to other industry specific negative externalities, such as fish kill or bird kill by renewable energy technologies boosted by CTC? To problems posed by plastics, or water resource depletion, or deforestation?

Getting Clean Tax Cuts & Deregulation right will take a community effort. Outreach will be important to find the right people with the right talents, resources, experience and ideas.

Then, of course, the most important next step will be for the those who realize they have something to contribute to step forward, help shape this concept, save the planet, and turn capitalism into clean capitalism.

And don't forget to have some fun.

FOOTNOTES:

- 1 Christina D. Romer & David H. Romer, 2010. "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks," *American Economic Review*, American Economic Association, vol. 100(3), pages 763-801, June. While the study looks at all tax changes, not specifically marginal rate cuts to corporate and capital gains taxes, the Romers' 1:3 tax multiplier is based upon a study of post-WWII exogenous tax changes (such as the Kennedy, Reagan and Bush tax cuts, or the Clinton tax hike) which are actually heavily weighted to marginal tax rate changes. So the part of their results I am citing (multipliers based on exogenous tax changes), would still be strongly suggestive concerning the impact of marginal rate cuts to corporate or capital gains taxes.
- 2 Robert Barro & C.J. Redlick "Macroeconomic Effects of Government Purchases and Taxes", *Quarterly Journal of Economics* , February 2011
- 3 The sector specific growth effect from Clean Tech Tax Rate Cuts is likely to be stronger than the kinds of economy-wide growth effects these macro economists measure, because these are asymmetrical tax rate cuts, which focus growth on decarbonizing investments.
- 4 Mankiw, N. Gregory and Matthew Weinzierl. "Dynamic Scoring: A Back-of-the-Envelope Guide," *Journal of Public Economics*, 2006, v90(8-9,Sep), 1415-1433