



BD Zones and BDO Zones: Weaponizing Biomass to support a Bio-Fueled Economic Recovery.



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Key Points

- The US has over a billion tons of biomass which can be used as a key lever to drive economic recovery.
- USDA estimates that 3.4 million jobs and nearly \$660 billion of economic benefits would be created by using biomass to manufacture alternative fuels, renewable chemicals, bio-based products and sustainable aviation fuels.
- BD Zones and BDO Zones are shovel-ready, actionable initiatives that unlock billions of dollars of institutional investment into communities where there is a surplus of biomass and where employment and bioeconomy development can be closely linked.
- **BD Zones** are areas where biomass feedstock readiness can be certified as “high availability and low risk”. There are thousands of these areas around the country. State economic development organizations are already set up to leverage BD Zones to de-risk project development and drive investment.
- **BDO Zones** are BD Zones that overlap with existing federal Opportunity Zones and can therefore qualify for powerful OZone tax incentives. BDO Zones have supercharged potential for bioeconomy development and related employment.
- A relatively minor clarification of OZone Guidance would unlock billions of development dollars for bioeconomy manufacturing plants that are built in BDO Zones.

Biomass can be a powerful engine for the economic recovery

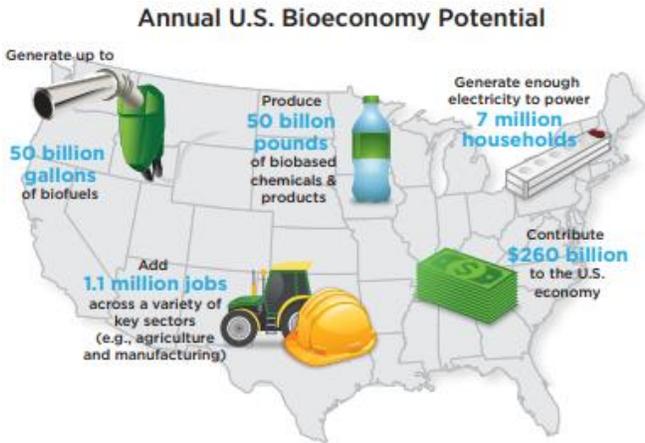
The economic devastation created by COVID 19 is staggering and only beginning to become clear. What is clear, however, is that for the foreseeable future, the American economy is in a war. And to win, we need a new source of ammunition. Fortunately, we have it—a [billion tons](#) of it located primarily in [rural areas](#) across the nation. It’s our biomass: our wood fiber, our wheat straw, our corn stover, our food waste—even our MSW.

And when we deploy this largely untapped asset to manufacture alternative fuels, renewable chemicals, bio-based products and sustainable aviation fuels, it becomes a [job creation engine](#), supports energy independence, and drives economic stability-- particularly in rural America.

In order to win this war, we need to weaponize this enormous asset to fuel the recovery.



Credible estimates of the economic impacts of biomass utilization are too significant to ignore: USDOE values direct impacts at [1.1 million jobs](#) and [\\$259 billion](#). USDA estimates direct *and* indirect economic benefits using [conservative multipliers](#) at [3.4 million jobs](#) and [nearly \\$660 billion](#).



But weaponizing the inherent economic power of a billion tons of biomass requires a new approach that meaningfully de-risks bio-project development and investment.

Bioeconomy Development (BD) Zones and **Bioeconomy Development Opportunity (BDO) Zones** are two complimentary initiatives that can do this, and do it fast. BD Zones and BDO Zones are shovel-ready, actionable initiatives that bring unprecedented development efficiencies to biofuel, bioenergy, biochemical and biomaterials projects and unlock billions of dollars of institutional investment into communities where there is a surplus of biomass and where employment and bioeconomy development can be closely linked.

Most importantly, they do this using validated standards, established economic development approaches and by leveraging one of the largest federal tax incentives in US history: Opportunity Zones.

This is key, because the framework for an economic recovery needs to be put into place

quickly. Using *existing and proven components* in a new way is what makes this approach such a powerful driver of economic recovery.

The only barriers to putting these initiatives to work is government red-tape and a plan to execute. Herewith, we offer a two-step plan to weaponize a billion tons of biomass in support of a bio-fueled economic recovery.

Step 1: Designate BD Zones

The BD Zone Program has a strong and proven precedent used by most states to create efficiencies and drive economic development: Certified Industrial Site-Readiness Programs.¹ Most states have them because they work. Site Certification is one of the most effective tools state economic development professionals use to create a competitive advantage in successfully locating significant manufacturing operations. We do not have this kind of tool for the development of bioeconomy projects -- but we should.

Site certification programs are carried out with consistent application of standards and critical qualitative factors to ensure ‘development readiness’. Narrowing sites to a short-list based on validated, important criteria significantly reduces development risks and delays to project timelines, and creates cost savings. Developers rely on them as a key input for locating high-impact projects.

In the same way, we need to designate geographic zones across the country that are ideal for bio-project development; areas where feedstock readiness can be certified as “high availability and low risk”. We call these **Bioeconomy Development Zones**. BD Zones will be certified according to three main criteria:

1. [Large surpluses](#) of biomass;²
2. [Low-risk supply chains](#) to deliver it;
3. [Suitable infrastructure](#) to support bio-plant operation.



The good news is that with over a billion tons of available biomass around the country, there are thousands of potential areas that should meet these criteria.

Certification of BD Zones

Government should set the certification requirements for BD Zones using existing standards that pertain to feedstock risk and quickly set up a task force to approve nominations as ‘certified BD Zones’. The standards used to rate and certify the low risk of feedstock supply in BD Zones should have quantitative criteria developed by government and industry, and accepted by stakeholders in both the bioenergy sectors and the capital markets.³

We have the right tools for the job. The [Framework for Biomass Supply Chain Risk \(BSCR\) Standards](#) is a standardized transparent protocol developed over the past 4 years for exactly this purpose by the USDOE’s Idaho National Lab (INL), Los Alamos National Lab (LANL) and Ecostrat, together with a [stakeholder group](#) of several hundred major bioeconomy investors, plant operators, feedstock and equipment suppliers, government and academia, with funding from the US Department of Energy’s Bioenergy Technologies Office (BETO).⁴ It enables the quantification and risk rating of over [126 Feedstock Risk Indicators](#) developed specifically to de-risk investment for the capital markets and can easily be modified to rate high level feedstock risk for BD Zones.

Certification of BD Zones could be carried out by an independent Biomass Rating Agency— an autonomous consortium made up of the developers of the BSCR Standards, the USDA’s Agricultural Research Service (ARS) and key capital market players. Certification criteria for BD Zones could be developed by the consortium based on the BSCR Standards and Risk Ratings and distributed to state economic development organizations who would, in turn, be tasked with

quickly soliciting nominations for qualifying BD Zones from local associations, communities and businesses.

Nomination of BD Zones

In the face of a shattered US economy and the imperative of a quick recovery, speed is of the essence: nomination of the first BD Zones should be both top-down and bottom-up.

BD Zones could be quickly nominated by USDA Rural Development, US Forest Service, US Endowment for Forests & Communities, state bodies, or governors. Concurrently, a bottom-up program should be set up to accept nomination of BD Zones from local communities and operators with boots-on-the-ground knowledge when it comes to biomass availability that governments cannot replicate. Additional BD Zones could be nominated by associations, mayors, community organizations or reliable anchor suppliers of biomass with strong balance sheets, such as large landowners, forestry companies, sawmills, agricultural co-ops, food manufacturers, waste haulers or landfills. USDA has a number of funding programs that could support this.

There should be particular BD Zones for different categories of biomass: wood fiber, agricultural residues like corn stover, or wheat straw, purpose grown crops like switchgrass, food waste, manure, or even MSW.⁵ There is no limit to the number of BD Zones a state could have. In fact, more is better: more BD Zones will create greater efficiencies for developers and investors and drive more bio-economic development at the community level.

Driving Economic Development in BD Zones

BD Zone certification is a powerful tool that can be leveraged by State Economic Development Offices to promote local bio-business development and create important on-the-ground connections between project developers and local owners and suppliers of the biomass.



State Economic Development Offices would be tapped to promote certified BD Zones on their existing websites and take submissions for additional BD Zones on an ongoing basis (Fig. 1).

Fig. 1 Michigan Economic Development Website-- BD Zone Program (illustrative purposes only)



At the federal level, the US Economic Development Administration (EDA) could promote BD Zones to international developers looking to site bioenergy projects in the US. In the same way as many states do for Certified Industrial Site Designations, government economic development organizations may choose to allocate funds to subsidize part or all of the cost of BD Zone Designation and increase the number of qualified BD Zones in their states.

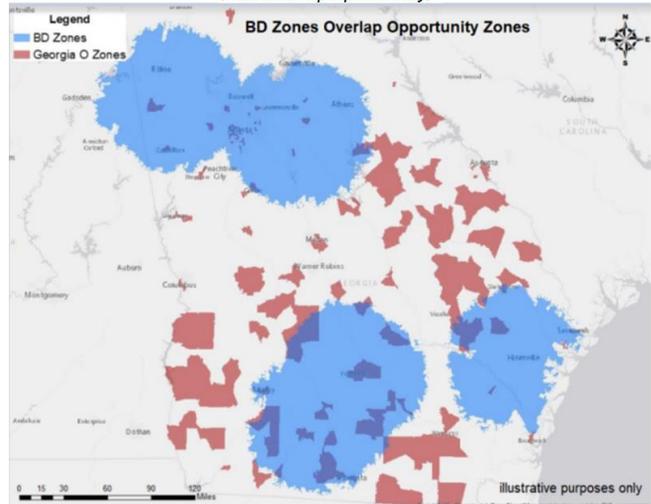
By itself, the BD Zone Program addresses a clear need and provides substantial economic development benefits. Coupled with the tax incentives of the OZone Program, that impact can be powerfully magnified.

Step 2: Clarify OZone Guidance and Designate BDO Zones

The Opportunity Zone Program is an untapped engine for making the bio-economy a key component of the economic recovery. By combining the benefits of BD Zones with tax incentives, we can create supercharged potential for bioeconomy development, related employment and economic recovery.

There are 8,764 OZones located in distressed communities across the country. Not all Opportunity Zones overlap with BD Zones, but those that do could easily be eligible for existing OZone tax incentives. Where there is overlap, there is opportunity. We call these overlapping regions **Bioeconomy Development Opportunity Zones** or simply, **BDO Zones** (Fig. 2).

Fig. 2 Georgia BDO Zones (illustrative purposes only)



The latest round of [revised OZone Guidance](#) issued by Treasury and the IRS made clear that green energy projects can qualify for OZone tax treatment.⁶ Already, there has been over \$46 billion invested in [209 Qualified Opportunity Funds](#) (QOFs) with 16 QOFs designated for clean energy- primarily solar. *But there are no QOFs yet for investment into the bio-sectors.*

The reason is that Ozone Guidance still does not make clear to bio-investors and developers that



investment in OZones will definitely qualify for Ozone tax incentives. For the bioeconomy to be a major pillar of the economic recovery, this needs to change.

We believe that a relatively minor clarification to the OZone Guidance that spells out how bio-projects located in OZones could qualify for OZone tax incentives would unlock billions of development dollars for bioeconomy development in BDO Zones.

Clarifications to OZone guidance are made by US Treasury and the IRS under [IRC 1400Z-2](#). New OZone guidance must take into account the characteristics of bio-economy projects. For example, biomass supply chains are typically 50 – 75 miles from the plant: BD Zones typically cover an area that stretches 7,800 – 17,600 square miles or more. If an advanced biofuel plant locates inside an OZone and derives most its revenue within the OZone, but creates a significant portion of its jobs outside the OZone, will it qualify for OZone tax incentives? New guidance from Treasury must be issued to make the answer clear—and the answer needs to be ‘yes’.

This guidance clarification would enable bio-development within BDO Zones to tap the three separate yet related tax inducements⁷ under the OZone program:

1. **Temporary deferral of taxes on previously earned capital gains.** Existing assets with accumulated capital gains are eligible for investment in Opportunity Funds. Those existing capital gains are not taxed until the end of 2026 or at such time as the asset is disposed of.
2. **Basis step-up of previously earned capital gains invested.** For capital gains placed in Opportunity Funds for at least 5 years, investors’ basis on the original investment increases by 10 percent. If invested for at least 7 years, investors’ basis on the original investment increases by 15 percent.

3. **Permanent exclusion of taxable income on new gains.** For investments held for at least 10 years, investors pay no taxes on any capital gains produced through their investment in Opportunity Funds.

BDO Zones De-risk and Drive Investment

BDO Zones will not only de-risk investment in bioenergy by focussing development on validated, dependable, and resilient biomass feedstock areas, but the higher return on investment in BDO Zones through tax incentives can enable development of biomass-based projects where it was previously impossible. The OZone program tax benefits — capital gains tax deferral, partial forgiveness of tax on capital gains, and forgiveness of additional gains on investments in OZones — make it easier to finance bio-based projects because the **projects can deliver higher returns and be structured with simpler capital stacks that lower costs.**

In addition, sponsors of alternative fuel, renewable chemical, bio-based product and sustainable aviation fuel projects may be able to rely on Opportunity Fund investors so that traditional renewable tax credit investors are not required. Here’s why: in a typical renewable project deal, a developer partners with a tax equity investor in a joint venture, holding a project eligible for renewable electricity production tax credits (“PTCs”) or energy investment tax credits (“ITCs”). In the early stages of the project, the profits and losses (including the PTCs and ITCs) are allocated predominantly to the tax equity investor, allowing for the use of PTCs and ITCs to offset its other tax liabilities.

However, the relatively small pool of investors with tax liabilities to offset pales in comparison to the enormous size of the pool of investors with capital gains to offset. What’s more, these investors may be willing to accept lower pre-tax economic return, since the potential for a tax-



free exit will enhance the after-tax return considerably. **Capital invested in BDO Zones therefore not only reduces transaction costs, but also expands the investor base for bioenergy projects.**⁸

For a growing bio-economy, equity investment is key. For equity investors or venture firms, which tend to make many small, risky bets with the hope that a few will be blockbusters, **investing in BDO Zones can carry unbelievable gains.** If Facebook, for example, could have chosen to locate in an Opportunity Zone, the investors would have paid no capital gains on their equity. Couple that potential gain with the low biomass feedstock risk of an ‘A’ rated BDO Zone, and you have a compelling proposition to unlock equity investment into bioenergy.

Part of the compelling potential of the BDO Zone Program derives from the fact that the structure of the OZone program fits very nicely with the requirements for successful investment into bioenergy: investment in biomass supply chains requires meaningful and flexible engagement in local communities and markets. The OZone program does not function as a bureaucratic agency directing subsidies to applicants that meet government-based criteria. **Rather, it removes from government the liability of “picking winners and losers”** which leads inevitably to accusations of “government failure”, and instead places it on the market which is in the business of taking those risks. At its base, then, the OZone program functions as a flexible, market-driven model that harnesses the power of financial intermediaries such as private equity firms, banks, investment banks and venture capitalists, thereby minimizing the dangerous and high-risk role for the government in selecting and capitalizing projects.

The growth of bio sectors has suffered greatly from lack of investment capital. The scale of tax incentives for development in BDO Zones that would accrue from clear guidance from Treasury

on the matter would enable biomass to be an engine of job creation and economic growth for the recovery as well as a pillar for ongoing economic stability.

The Time to Move Is Now

Governments will soon be deploying billions to stand the economy back up and re-create the face of our economic infrastructure for the next 25 years— and it is imperative that government use all the assets at its disposal. A billion tons of biomass driving economic recovery across the country is too large an asset to ignore.

Our post-pandemic economy must be anchored by new facilities that lead the world in the production of alternative fuels, renewable chemicals, bio-based products and sustainable aviation fuels. It must create new economy jobs: jobs that last, jobs in rural communities, and jobs that cannot be outsourced. And it must support energy independence and economic stability.

BD Zone and BDO Zone Programs are quickly deployable, building on existing structures that have been proven to work. By putting these pieces together in a new way, and with a little political effort to tweak OZone guidance, we can make bioenergy, biofuels, biochemicals and biopower a powerful engine for economic recovery.

With BD Zones, government uses validated standards and ratings to designate regions that have biomass surpluses, low risk supply chains and necessary infrastructure. This creates efficiencies and cost savings for developers and a pipeline of lower risk investment areas for bio-based capital markets. Economic development agencies can use certified ratings to promote BD Zones and drive new business development in those regions.

With BDO Zones, investors will be able to plow taxable capital gains into projects located in areas



that present validated low feedstock risk profiles, slowly erase the tax obligations on a portion of those gains and, more significantly, have those proceeds grow tax-free. This will unlock huge pools of capital that were previously unavailable to the bioeconomy and put that money to work fast.

It is now clear that the coronavirus pandemic will exact a staggering toll on the American economy. BD Zones and BDO Zones are two complimentary programs that can support renewable fuels, bioenergy, biopower, biochemicals, bioproducts and economic recovery throughout the country.

The time to move on this is now.

3 Recommendations to Government

1. Form a **Bio-Economy Recovery Task Force** comprised of USDA Rural Development and Agriculture Research Service (ARS), State Economic Development, Los Alamos and Idaho National Labs, Ecostrat, capital market investors and industry organizations to recommend initiatives that decrease barriers to investment in the bio-economy and to accelerate bio-based job creation, especially in rural areas.
2. Allocate recovery funds to programs that directly and indirectly support bioeconomy job creation. Part of these funds should be used to **set up guidelines with state economic development agencies to designate BD Zones**, and help stand up a new US Biomass Ratings Agency to use the Standards for Biomass Supply Chain Risk to **certify 'investment-ready' BD Zones and BDO Zones across the country**.
3. Cut through the red-tape and approach US Treasury to **clarify OZone Guidance** to make clear that bioeconomy investment qualifies for OZone tax treatment.

Jordan Solomon is President and CEO of Ecostrat Inc. He leads the [USDOE/BETO funded project](#) to develop the [US Standards and Ratings for Biomass Supply Chain Risk](#). He has overseen development and operation of biomass supply chains for over 5,000,000 tons of feedstock over two decades for bioenergy, biofuel, and biochemical projects. www.ecostrat.com

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¹ <https://siteselection.com/issues/2012/may/sas-shovel-ready-sites.cfm>;
<https://www.miplace.org/redevelopment-ready-sites/>
<https://www.iowaeconomicdevelopment.com/business/certifiedsites>

² Likely, a minimum of 100,000 BDMT surplus per yr within a 2-hour drive-time distance of any point of the BD zone.

³ www.ecostrat.com/standards/participants

⁴ www.ecostrat.com/standards

⁵ Certain locally underused categories or species could be designated such as hardwood or poplar.

⁶ <https://www.greenbiz.com/article/opportunity-zones-could-provide-major-boost-clean-energy-sustainable-development>

⁷ https://on360.ca/policy-papers/opportunity-zones-an-opportunity-for-ontario/#_ftn11

⁸ <https://www.jdsupra.com/legalnews/investments-in-renewable-and-22066/>

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