



IDEAS

**ENERGY AND
ENVIRONMENT**

POLICY OF THE YEAR NOMINEE:

**No Impact Workforce:
Implementing
Environmental
Training Programs**



FOR ENERGY AND ENVIRONMENT 2015

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Who We Are

The Roosevelt Institute | Campus Network, the nation's largest student policy organization, engages young people in a unique form of civic participation that empowers them as leaders and promotes their ideas for change. Through coordination with political actors and community leaders, Network members design and implement solutions to the pressing issues facing their towns, counties, and states. Now boasting 120 chapters in 38 states with thousands of members, we're building a network of young people who are filling the ideas gap in communities across the country. In doing so, we're preparing a new generation of thinkers and policymakers to burst forth onto the nation's political stage.

What You're Holding

Now in its seventh year, the *10 Ideas* series promotes the most promising student-generated ideas from across our network. This journal, which includes submissions from schools located from California to Georgia to New York, stands as a testament to the depth and breadth of our network of innovators.

Our *10 Ideas* memos are selected for publication because they are smart, rigorously researched, and, most importantly, feasible. We want to see these ideas become a reality.

How You Can Join

As you explore these ideas, we encourage you to take special note of the "Next Steps" sections. Here, our authors have outlined how their ideas can move from the pages of this journal to implementation. We invite you to join our authors in the process. Contact us on our website or by tweeting with us @VivaRoosevelt using the hashtag #solve2015.

Thank you for reading and supporting student generated ideas. Together we will design the future of our communities, from towns to countries and all that lies in-between.

WELCOME!

Dear Readers,

Young people on college campuses are often asked to make phone calls, knock on doors, and campaign for existing agendas, but they're rarely asked about their own policy ideas. Since 2004, we have been working to change that norm. At its core, the Roosevelt Institute | Campus Network seeks to defy the public's expectations of young people in politics today.

Over the past 10 years, we have built an engaged, community-driven network of students who are committed to using policy to transform their cities and states now and build the foundation for a sustainable future. We believe that broader participation in the policy process will not only improve representation but produce more creative ideas with the potential for real impact.

In this year's *10 Ideas* journal, we present some of most promising and innovative ideas from students in our network. With chapters on 120 campuses in 38 states, from Los Angeles, California, to Conway, Arkansas, to New York City, we have the potential to effect policy ideas that transcend the parameters of our current national debate. Our student authors push for practical, community-focused solutions, from using pavement to improve sanitation in Louisville, Kentucky, to creating community benefit agreements for

publicly funded stadiums in Lansing, Michigan, to building workforce development programs for agricultural literacy in Athens, Georgia.

Policy matters most when we take it beyond the page and bring it to the communities and institutions that can turn it into reality. Many of the students in this year's publication have committed to pressing for impact. They're connecting with decision-makers in city halls and state capitols, armed with the power of their own ideas.

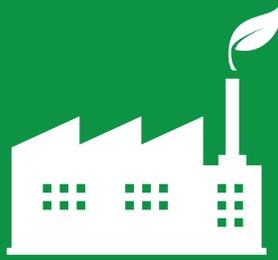
The breadth and depth of our network is reflected in the diversity of the proposals featured in this journal. We hope you'll enjoy reading them as much we did. The next generation of innovative minds and passionate advocates is here, and it's changing this country one idea at a time.

Sincerely,

Joelle Gamble

National Director

Roosevelt Institute | Campus Network



CONGRATULATIONS TO

Caroline Coccoli and
Victoria Nelson

authors of *No Impact Workforce: Implementing
Environmental Training Programs*

**Nominee for
Policy Of The Year**

A jury of Roosevelt Institute | Campus Network members, staff, and alumni select one piece from each journal to nominate for the honor of Policy of the Year. We base our nominees off of the quality of idea, rigor of research and potential for implementation. The cover design of this journal portrays this year's nominee in visual form.

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Closing Orphaned Wells: Preventing Spills When Oil Companies Go Bankrupt

Liam Berigan, Cornell University

By asking oil well operators to pay an annual financial security fee for each of their oil wells and refunding these payments when wells are plugged, Louisiana state regulators can ensure that wells are safely closed if their operators go bankrupt.

Oil drilling has massive upfront costs and generates revenue gradually and variably for several decades after wells are completed. Slow investment return means many small oil companies that drill in the United States are heavily in debt and often go bankrupt.¹ When drillers declare bankruptcy, their wells become “orphans,” whose plugging becomes the responsibility of state governments. Orphaned wells waiting to be plugged are often responsible for dangerous chemical leaks,² and can pose safety hazards to boats.³ In addition, unplugged oil wells will continue to emit methane, a powerful greenhouse gas, for as long as they remain open.⁴ Together, these risks pose a significant hazard to Louisiana’s unique coastal and inland ecosystems.

There are more than 2,800 orphaned wells that are under the purview of the Louisiana Department of Natural Resources (DNR), many of which have been left open for decades. According to a report released by the Louisiana Legislative Auditor last May, there is insufficient funding for plugging these wells.⁵ The number of orphaned oil

KEY FACTS

- More than 2,800 wells have been orphaned in Louisiana and remain unplugged.⁹
 - Due to limited funding, the Louisiana Department of Natural Resources was only able to plug 95 of these wells last year, while many more were orphaned.¹⁰
 - Government watchdog groups estimate that the financial security requirements in Louisiana cover only one-seventh of the actual cost of plugging an onshore oil well.¹¹
-

wells in Louisiana will only continue to grow, making this problem harder to solve as the years go by.

Oil well operators should pay an annual fee to support financial security accounts for their wells that are currently used for production. If the well is properly plugged at the end of its use, then the operator who plugged the well would receive a reimbursement commensurate with the total amount paid for financial security over the well's lifetime. If the operator goes bankrupt, however, this money would be used to fund the well's closure.

ANALYSIS

Although Louisiana does ask well operators to pay some financial security before they drill a well, current fees only reflect a fraction of the actual cost of plugging a well.⁶ Although the Louisiana Legislative Auditor suggests raising the upfront financial security to cover these costs, this solution may drive small oil operators to borrow more money and drive themselves further into debt.

Regulators should raise the financial security requirements for wells, but instead of asking that this money is paid upfront, oil companies should pay their financial security using a "pay as you go" method, where the oil company pays financial security as the well produces. This would allow oil companies to pay for the financial security cost using profits from the producing well, and avoid having to take out additional loans to pay for the increased financial security.

The oil industry would likely be willing to negotiate with state regulators. Several industry groups, including the Louisiana Mid-Continent Oil and Gas Association and the Petroleum Association of Wyoming, have stated their willingness to pay larger fees and

TALKING POINTS

- Orphaned oil wells leak methane, a powerful greenhouse gas, and can potentially cause hazardous oil leaks.
- This policy would be a more politically feasible way to fulfill the recommendations of the Louisiana Legislative Auditor.
- This strategy is already being used by companies such as Powder River Energy, who put aside a few cents per gallon of oil they produce to use to plug their wells.

bonds to protect wells from being orphaned.^{7,8} This solution would allow the Louisiana DNR to plug any new wells that are orphaned in the state, while keeping the costs on industry low enough that the solution would be politically viable.

Next Steps

Stakeholders should begin to lobby for this policy by gathering support from industry groups that want to make the drilling process more environmentally safe. Local environmental groups, such as the Louisiana Environmental Action Network, could help by lobbying for politicians to pass this legislation.

Although Louisiana is one of the states with the worst orphaned well problems, it is not the only one. States like Ohio, North Dakota, and Pennsylvania could use similar legislation to plug their hundreds of orphaned oil wells, and slightly improve the environmental safety of oil and gas drilling.

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Seed Banking for Urban Farming in Washington, D.C.

Daniel Blumin and Jacob Burman, George Washington University

By providing locally sourced seeds to support urban agriculture, the D.C. municipal government can reduce carbon emissions from food transportation and processing while addressing food desert problems affecting low-income communities.

Urban agriculture is an important solution to addressing the environmental impacts of food deserts in urban communities. Food deserts impact D.C. residents afflicted by poor health and living in low-income wards (specifically wards 4, 7, and 8).¹ Residents of these wards often sustain their families with processed foods from corner stores. The federal government has attempted to tackle this issue by providing funding through the Healthy Food Financing Initiative program, which provides \$500 million in tax credits to eliminate food deserts, as well as increasing funding to the Supplemental Nutrition Assistance Program.² However, the inaccessibility of fresh produce markets, especially those that accept food stamps, has led to inefficiency in both policies.³ Congress and local governments have accepted USDA reports on the dangers of carbon emissions and food deserts but have not responded effectively.⁴ This policy seeks to reduce carbon emissions from food transportation and processing, mitigate food deserts in low-income communities, and improve

KEY FACTS

- Million Trees LA is a Los Angeles-wide initiative launched in 2006 to plant fruit trees in urban neighborhoods to reduce carbon output and provide access to healthy food. As of 2013, it has planted 407,000 trees with beneficial community impact.⁹
- Aggregate transportation in the food industry accounts for 17 percent of all carbon emissions in the U.S. food sector; plant-based foods, however, have relatively low production emissions.¹⁰
- D.C. has a food store for every 1,589 residents, but in wards 7 and 8, the ratio is one for every 2,585 residents. Of the 30 D.C. farmers markets, only three exist east of the Anacostia River.¹¹

community health through urban agriculture initiatives.

The D.C. municipal government should identify produce that can be locally and sustainably grown. The identified plants' seeds should be available to the community to encourage urban agriculture in underserved neighborhoods. These seeds should be distributed from community anchors including schools and community centers. To acquire these seeds, the city government should create a seed bank in partnership with existing community gardens as well as seek private partnerships to encourage continuing urban agriculture development in low-income wards of D.C.

ANALYSIS

This policy seeks to support the development of urban agriculture in low-income communities in D.C. in two ways. First, this policy would address urban agriculture start-up and maintenance costs. Urban farms often incur costs of up to \$10,000 for purchasing seed, fertilizer, and more.⁵ While these costs can be mitigated by tax benefits such as donating food to local shelters (which gives farmers a 50 percent produce value tax-break), they first require a yield of excess produce for benefits to be realized.⁶ Providing seeds increases publicity for urban farming and addresses many issues that disproportionately affect low-income wards.⁷ Secondly, by identifying specific local produce that can be sustainably grown, the government can encourage efficiency in urban agriculture. Leafy green vegetables are an example of produce that requires minimal amounts of water to be grown while providing nutritious and cheap options for low-income families.⁸

TALKING POINTS

- D.C. incurs an elevated carbon footprint due to high dependence on and transport of processed foods. Low-income wards are subject to a lack of fresh produce; therefore, they buy processed products.¹²
- There has been precedent for similar programs such as Los Angeles's Million Trees Campaign, which led to increases in overall community health.
- A seed bank operating in conjunction with local anchor institutions would allow for residents of low-income wards to grow their own healthy produce at low cost.

Next Steps

There are three steps D.C. needs to take to move forward on encouraging urban agriculture. First is to pass the D.C. Urban Farming and Food Security Act, which is under consideration by the D.C. City Council. This act would establish a definition for urban farming and provide tax relief for donated produce and landowners who lease their properties for urban farming. Second, the city needs to identify urban agriculture locations to better work with urban farmers on sustainable initiatives and community education. Third, the city needs to work with local farmers to identify resource-efficient plants. Once determined, the city should collaborate with farmers and agriculture companies to begin to establish a collection of these seeds to encourage the overall growth of urban agriculture in D.C.

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Invest in the Future, Not Fossil Fuels

Elizabeth Chi, Cornell University

Fossil fuel combustion is the primary culprit in driving global climate change. Cornell University, a pioneer institution in renewable energy research and application, should stop investing in fossil fuels.

Claiming financial stability as its primary concern, the Cornell University Assembly, a governing body of university students, faculty, and employees, voted against fossil fuel divestment, which calls for removing Cornell's remaining fossil fuel investments from its endowment's portfolio. Cornell has already divested from coal and committed to carbon neutrality by 2035, but that is not enough.^{1,7}

Oil and gas combustion releases carbon compounds into the atmosphere, causing broad climate changes. Continuing to invest in fossil fuels contributes to extreme weather, sea level rise, and polar ice and glacial thawing; it condones the resulting pest and disease proliferation and new mass extinction, profiting at the expense of global economies, health, and food security.

Moreover, even the Rockefeller Brothers Fund is divesting \$56 billion from fossil fuels. According to Stephen Heinz, its president, "if [John D. Rockefeller] were alive today, as an astute businessman looking out to the future, he would be moving out of fossil fuels and investing in clean, renewable energy."² Sustainable investments are unlikely to jeopardize Cornell's \$5 billion endowment³ and will be profitable in the long run. Cornell also has an obligation to use its endowment for the benefit of its students. Since investing in fossil fuels supports an unsustainable future, asking the university to sell those stocks by 2035 is not only reasonable but also necessary.

KEY FACTS

- Cornell plans to reach carbon neutrality by 2035.⁷
- Contrary to the U.S. Senate Resolution on the Schatz Amendment to the Keystone Pipeline, fossil fuel combustion is largely responsible for the unprecedented rapid rise in atmospheric CO₂.⁹
- Oil and gas supplies are predicted to run out in 53 and 55 years, respectively.^{10,11}

Investing in fossil fuels contradicts Cornell's vision and commitment to sustainability,⁴ and numerous colleges have already committed to complete fossil fuel divestment. Stanford drew media attention to the divestment movement by divesting from coal. Cornell could lead the charge to a clean energy future by becoming the first globally acclaimed university to sever ties with oil, gas, and coal.

Cornell University should divest from any remaining public stocks in major fossil fuel companies by 2025, and the less liquid private stocks by 2035. Alternative investments include rapidly growing Sustainable, Responsible, and Impact investing (SRI).⁵

ANALYSIS

Historically, Cornell has actively responded to student pressure to abstain from unethical investments. It divested from businesses benefitting from apartheid in South Africa, which helped lead to federal legislation to end apartheid. It divested from oil companies in Sudan in opposition to humanitarian crimes.⁶ More recently, it divested from coal and committed to reaching carbon neutrality by 2035.^{1,7}

Selling fossil fuel stocks could minimally decrease endowment returns,⁷ but Cornell can replace them with SRI, which includes mutual funds, venture capital, hedge funds, capital funds, and community investing institutions that “[consider] environmental, social and corporate governance criteria to generate long-term competitive [profits] and positive societal impact.” SRI increased from \$3.74 trillion in 2012 to \$6.57 trillion in 2014 in the United States.⁵

Cornell's coal divestment was easy because it was immediately financially favorable. However, if Cornell has divested from companies

TALKING POINTS

- Progressive, intellectual institutions send conflicting messages to the world by investing in fossil fuels.
 - SRIs could replace fossil fuel investments.
 - Divestment by 2035 is a reasonable compromise.
 - If an institution of Cornell's prestige divests from fossil fuels, others may follow suit.
 - Divestment is being used as a tool for social change worldwide, and the movement is starting to gain momentum.
-

benefitting from exploitation in South Africa and Sudan for moral reasons, it can divest from fossil fuels too. Selling its remaining fossil fuel stocks and shifting to SRI would allow Cornell to support its students with a moral endowment.

Some contend that fossil fuel companies can facilitate a clean energy future, but the Forum for the Future recently ended decade-long corporate sustainability partnerships with Shell and BP since both corporations appeared “entirely unmoved” by climate research.⁸ Those earning the largest profit margins from exploitation are, unsurprisingly, unlikely to oppose or change those patterns. Divestment, not engagement, is our best hope of securing our energy future.

Next Steps

Students and faculty must continue mobilizing support to pressure the Assembly to vote for divestment while researching its financial implications. Undergraduate, Graduate, and Faculty Senate members should work with consultants and the investment office to make necessary adjustments to Cornell’s portfolio. In the meantime, Cornellians should organize their student body to push for these partnerships among all campus clubs and organizations.

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No Impact Workforce: Implementing Environmental Training Programs

Caroline Coccoli and Victoria Nelson, Northwestern University

Since Illinois landfills will reach capacity in 21 years, the state should require government employees to complete a training program focused on reduction of everyday waste.¹

In 2013, Illinois accepted 287 million tons of garbage to its landfills. These landfills decrease land value and availability.² The City of Chicago spent \$3.5 million on landfilling recyclables (i.e. paper, plastic, aluminum cans) in 2010, accounting for roughly half of the city's landfill waste.³ Individual waste reduction is the most efficient solution, as it is a method of prevention as opposed to mitigation.

Both Illinois and the EPA support purchasing of sustainable workplace products.⁴ However, 60 percent of federal executives thought current sustainability initiatives like these were inadequate and that better employee education would lead to a more sustainable workplace.⁵ The U.S. Postal Service is one of the few agencies that offers sustainability training.

Illinois requires employees to complete ethics training, but it does not address environmental responsibility.⁶ Poor understanding of how to reduce individual waste — for example, single-use disposables — can hinder the success of existing sustainability programs.

The State of Illinois should require a sustainability component in workforce training, which addresses how to reduce the use of paper and plastic. Departments should require an hour-long training session

KEY FACTS

- Paper and plastic make up 36 percent of landfilled material in Illinois.¹²
- In 2007, the Illinois per capita waste generation rate was 19 percent higher than the national average.¹³
- Illinois landfills will reach capacity in 21 years.¹⁴
- An office building of 7,000 workers can reduce green house gas emissions by 570 metric tons of carbon equivalent by recycling, instead of landfilling, all of its paper waste for one year.¹⁵

at least once a year. Training coordinators should establish an annual competition to reduce individual waste. This activity could be based on the Northwestern Roosevelt chapter's No Impact Challenge, in which individuals compete to minimize the number of disposable items used over the course of one week.

ANALYSIS

Requiring employees to complete sustainability training would reduce landfilled waste and lower tipping fees. In 1997, Bell Atlantic established an employee waste reduction team, eliminating 2.9 million pounds of waste and saving over \$6 million.⁷

This educational program will have additional positive outcomes that a mandate would not. Taxpayer dollars finance the salaries of 130,206 full-time state employees.⁸ Thus, these individuals are informal civic representatives of the state, whose actions can increase public awareness of sustainable initiatives. Walker Research found that 78 percent of Americans disapprove of businesses with irresponsible environmental practices.⁹ Companies with robust training showed a 47 percent increase in market value compared to those with weaker programs.¹⁰ Therefore, sustainability training could improve the public image of state and municipal governments, just as it can a private company.

A workforce activity like the No Impact Challenge could also increase employee productivity. Group competitions can motivate employees and encourage ownership of organizational outcomes.¹¹ Employee education is the best solution for waste reduction because it is holistic, reducing landfill waste, saving state money, and improving employee productivity.

TALKING POINTS

- Reducing is the most cost-effective way to decrease landfill waste, since landfill maintenance is paid for in part by state and municipal taxes.
- Sixty percent of federal agency sustainability executives think current sustainability initiatives are inadequate and better employee training would lead to more sustainable actions in the workplace.¹⁶
- Establishing a "No Impact Workforce" will lighten landfill loads, save IL governments money, and encourage citizens to adopt more sustainable practices.

Next Steps

The first step is to contact the Inspector General, who sets hours and determines the frequency of training necessary for each type of employee. The state should model the proposed employee training on existing programs. The Inspector General should select one department as a test case and work with in-house administrators to structure training and analyze baseline standards for waste generation.

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Paving the Way: Permeable Pavement as a Sanitation Solution

Stephanie Dooper, The University of Louisville

The overflow of excess water from the combined sewage system in the Louisville metro area is polluting the Ohio River. The Louisville Metro government should require all new surface projects in the downtown area to be constructed of at least 20 percent permeable pavement.

City sanitary sewers carry wastewater to a central treatment center. The Louisville, Kentucky sewers, created in the 1800s, transport both wastewater and excess rainfall to the same treatment center.¹ The increase in urban development causes more rainwater to enter the metro sewer system, which drastically increases the amount of water that needs to be treated. When overflow occurs, most often during heavy rains, there is not enough capacity to treat the excess water and the mixture of wastewater and rainfall is dumped into the Ohio River.² Untreated wastewater is filled with bacteria and pollutants that are detrimental to human and animal health as well as the health of the environment. Additionally, this overflow of wastewater causes severe flooding in the surrounding area and adversely affects the neighboring cities that are downstream from the Louisville and Jefferson County Metropolitan Sewer District (MSD).

The MSD of Louisville suggests treating the overflow water issue by either constructing a separate storm and sanitary sewer (an extremely disruptive and expensive endeavor), exploring ways to treat the overflow water before it is dumped into the

KEY FACTS

- Combined Sewer Overflows (CSOs) send untreated water to the Ohio River during heavy rainfall.⁷
- Rain and snow are able to immediately flow through the pores and crevasses in pervious pavement, unlike conventional concrete.⁸
- Permeable pavement can filter as much as 70 to 80 percent of annual rainfall, help reduce stormwater runoff, and provide groundwater recharge.⁹

river, or finding ways to store the overflow water and release it into the sewer lines later. While these are viable solutions, it is evident that they have not yet been implemented and finding ways to prevent the problem would be a better option.³

The Louisville Metro government should require new contracts in downtown areas, including parking lots and walkways, to be made of at least 20 percent permeable pavement. This will significantly reduce the amount of rainwater being treated in combined treatment centers and the amount of untreated water entering the Ohio River because permeable pavement allows rainwater to be absorbed into the soil.

ANALYSIS

The benefits of requiring 20 percent of all newly constructed downtown areas to be built with permeable pavement include stormwater runoff reduction, better stormwater treatment, and fewer pollutants, such as bacteria and pathogens.⁴ Incorporating permeable pavements in urban development plans not only limits excess rainwater being transported through the sewage lines but also reduces flooding and allows plants to naturally filter out pollutants. Permeable pavements conserve water, reduce urban heat, and often use recycled materials.⁵ While permeable pavement is more expensive than traditional concrete surfaces, it would be more financially conservative and economically sound than the proposed solutions that MSD has suggested for the water treatment center. By allocating part of the annual \$30 million used to confront stormwater overflow, MSD could subsidize the construction of permeable pavements to provide both an immediate and long-term solution.⁶ Although future renovations to the MSD are still necessary, permeable pavements provide a quick

TALKING POINTS

- During heavy rainfalls, wastewater and rainwater are mixed and dumped into the Ohio River.
 - Over 3 million people use the Ohio River as a source of drinking water; the bacteria and pathogens dumped into it are detrimental to their health.¹⁰
 - Permeable pavement reduces the amount of rainfall overflow, naturally rids the water of pollutants, and reduces the urban heat island effect.¹¹
-

and permanent remedy and will continue to reduce the amount of water necessary for treatment.

Next Steps

The Louisville Metro Office of Sustainability should take immediate action by discussing this policy with construction agencies in the Louisville area. The Project Coordinator for the Office of Sustainability should then ensure that any guidelines resulting from this partnership are met.

In addition, the Office of Sustainability should allocate a portion of the funds currently in use for renovating the Metropolitan Sewer District — a project that will take years to implement — to fund this initiative.

The success of permeable pavements shouldn't remain in Louisville. The Office of Sustainability should advocate for the necessity of permeable pavement in other areas of the Louisville community and push for statewide action.

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Rooftop Gardens: An Energy Saver for Businesses and Outdoor Haven for Communities

Kirstie Hostetter, University of Georgia

Local governments in the U.S. should provide urban property owners with tax credits in exchange for constructing rooftop gardens, which reduce building energy consumption and provide a green space for urban garden initiatives.

Chicago, Austin, Milwaukee, Minneapolis, Nashville, New York City, Philadelphia, and Portland reward building owners financially for constructing “green roofs.”¹ Cities have a vested interest in promoting rooftop gardens, and thus are willing to pay to encourage their construction. Green roofs can reduce stormwater runoff by 60 to 100 percent, alleviating the strain on cities’ stormwater management systems. For example, if 20 percent of eligible buildings in Washington, D.C. had a green roof, they would add over 71 million liters to the city’s stormwater storage capacity. Rooftop gardens also lower ambient air temperatures by 30° C compared to conventional roofs, reducing the urban heat island effect that causes cities to be much hotter than surrounding rural areas.²

Building owners have an incentive to employ rooftop gardens because of the potential for energy cost savings. The lower ambient air temperatures alone result in energy savings of up to 15 percent with additional savings from the gardens’ insulation capabilities. Green roofs also last 2–3 times longer than traditional roofs. A study estimated that Chicago could save

KEY FACTS

- Rooftop gardens can reduce stormwater runoff by 60 to 100 percent, reducing pressure on urban infrastructure and capturing pollutants that would otherwise drain into nearby rivers.⁵
- Green roofs help control temperatures both inside of and around buildings, resulting in energy savings of 15 percent.⁶
- Green roofs last 2–3 times longer than traditional roofs, saving property owners the time and cost of roof replacement.⁷

as much as \$100 million annually if the entire city implemented green roof technology.³

Green roofs also provide urban habitats for birds and mitigate air pollution by filtering out particulate matter and gaseous pollutants in the air.⁴

Cities should incentivize urban building owners to pair with community garden initiatives and create rooftop garden partnerships. Building owners who construct a rooftop garden and sign a written document agreeing to donate their rooftop space to a local community garden program should be eligible for a property tax credit in proportion to the cost of construction. With this partnership, the building owner pays for the initial construction costs of the rooftop garden with help from the government, and then the community garden program takes over the maintenance of the rooftop.

TALKING POINTS

- The most important way to begin lowering emissions is energy efficiency.
 - Property tax credits for urban rooftop gardens make green roofs cost-feasible.
 - Rooftop gardens provide green escapes for an aesthetic contrast to increasingly dense urban environments.
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ANALYSIS

Even with the existing incentives in major cities across the U.S., green roofs are not very common in urban areas where they are especially needed. This policy is innovative because it increases building owners' willingness to invest in a rooftop garden project by creating two distinct financial incentives. First, it directly subsidizes the cost of the rooftop garden through the property tax credit. Second, through the community garden partnership, it removes the burden of garden upkeep. While building owners not in this program would have to hire professionals to maintain a green roof, those participating in the partnership program transfer maintenance responsibility to community garden projects that already have the needed knowledge and resources. These benefits are in addition to the energy cost savings that green roofs provide and the extended roof lifespans.

The community gardens have an incentive to enter into these partnerships because they provide space for their programs to expand in urban areas where space is valuable. These rooftop gardens can serve as unique settings for nutrition and sustainability education, providing gardening lessons for a population that might have limited access to open green spaces otherwise.

Overall, rooftop gardens provide economic benefits for building owners, governments, and community gardens as well as health and environmental benefits for the urban area as a whole.

Next Steps

The first priority should be to contact legislative groups and relevant industry groups, such as chambers of commerce, real estate developers, and small business alliances, to build support for the property tax credit among the stakeholders making the largest investment.

Then, in the urban areas most favorable to the policy, community gardens should lobby to pass this act and find businesses that are willing to take part in the initiative.

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Linking Federal Crop Insurance to Sustainable Agriculture Practices

Emma Johnston, Cornell University

Crop rotation and the planting of cover crops can mitigate nitrogen pollution from the overuse of synthetic fertilizers. Given the widespread implementation of the Federal Crop Insurance Program, the program should be linked to these cost-effective practices to ensure their adoption and to decrease environmental damage caused by excess nitrogen inputs, beginning with corn and soybean crops.

The Federal Crop Insurance Program provides subsidized insurance for farmers to protect against losses due to natural disasters. In 2013, more than 290 million acres of farmland were protected through the program, including the majority of corn and soybeans, the two largest agricultural exports in the U.S.¹ Last year, \$117 billion worth of crops were insured, costing taxpayers \$90 million. The government subsidizes 38-80 percent of the cost of insurance premiums.²

Crop insurance has been shown to increase the use of chemical pesticides by farmers and lead to increased soil erosion.^{3,4} Farmers purchasing federal insurance for corn applied significantly more nitrogen per acre and spent more on herbicides and insecticides.³

Insured farmers, subject to moral hazard, engage in riskier production methods because insurance shields them from the complete risk of farming on unproductive land.³

Overuse of chemical fertilizers has been a major contributor to the doubling of the amount of biologically active nitrogen in the biosphere. In the U.S., agriculture is the single largest source of nitrogen compounds, with the use of nitrogen fertilizer increasing from 2.7 to 12.8 million tons from 1960 to 2011. Half of all applied fertilizer in the U.S. is lost from agricultural landscapes.⁵ Nitrogen leached from soils enters waterways, creating dead zones, killing

KEY FACTS

- 84 percent of corn and soybeans are insured through federal policy.²
- Corn accounts for 40 percent of U.S. fertilizer consumption.⁷
- Legume-based nitrogen systems could almost halve the fossil fuel demand of agricultural landscapes.⁵

species, and contaminating drinking water.⁶ Meanwhile, the amount of corn and soybeans grown in continuous monocultures and two-year rotations has increased significantly in recent years, most likely due to federal policy encouraging the rapid production of biofuels.⁷ Continual growth of the same crop on a single plot of land or growing crops in two-year rotations ensures a steady food supply for pests that prefer a particular crop, meaning more pesticides are needed to keep them at bay.⁶

Farmers growing corn should only be offered federal subsidies if corn is grown in a rotation of at least three years with soybeans and nitrogen-fixing legumes. Additionally, farmers should be required to replace at least 50 percent of bare fallows with cover crops during winter months. Farmers who comply with this policy will not face a decrease in premium subsidies.

ANALYSIS

In the U.S., corn requires the most nitrogen per acre and accounts for approximately 40 percent of fertilizer consumption.⁷ While corn is usually grown in two-year rotation with soybeans, both crops demonstrate higher yields when grown in three-year rotations with legumes, plants that contain nitrogen-producing bacteria in their roots.⁸ These diverse crop rotations require 80 percent fewer nitrogen inputs and half the energy inputs of conventional two-year rotations.⁸ Crop rotation leads to decreased fertilizer costs for farmers and increased yields while improving soil quality, reducing greenhouse gas emissions, and decreasing the presence of invasive crop diseases and agricultural pests.^{8,9,10,11,12}

Legumes such as clover and hairy vetch grow as prolific cover crops during winter months when fields are usually left bare, adding 50–200 pounds of nitrogen to each acre of soil per year and decreasing the need for fertilizers to agricultural systems by half.^{5,11} Compared to bare soil, cover crops reduce contamination of drinking water 40–70 percent, mitigating externalities imposed on public health.⁵

TALKING POINTS

- Voluntary programs to encourage sustainable agriculture practices have not been widely adopted.¹⁴
- Targeting corn, the largest U.S. crop, will bring environmental compliance to soybeans, the second largest crop, since they are grown in a two-year rotation.
- Crop rotation with legumes leads to higher yields, decreasing the need for expensive and fossil fuel-intense chemical fertilizers.³

Next Steps

The Agriculture Committees in the Senate and House and the House Subcommittee on General Farm Commodities and Risk Management should investigate amending the Federal Crop Insurance Program so that all corn is required to be planted in three-year rotation with soybeans and legumes and all corn–soybean systems be planted with cover crops. These subcommittees should hold public hearings in the states with the highest production of corn and soybeans on how to mandate these policies at the regional level. The policy can later become an initiative of the National Resources Conservation Service, which carries out conservation compliance on agricultural landscapes.¹³

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Taking out the NYC Trash: Incentivizing Sustainable Waste Management

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With its inefficient waste management system, New York City (NYC) suffers from high levels of municipal solid waste (MSW) generation, affecting its own and neighboring states. The city should implement a system that creates financial incentives for proper recycling and composting practices and discourages non-reusable waste generation among its residents.

The United States is the leading contributor of global waste, producing a quarter of the world's waste deposit,¹ even though it constitutes less than 5 percent of the world population. Some of the largest waste generators in the U.S. are large cities, such as NYC, Chicago, and Detroit. NYC, in particular, generates 14 million tons of waste annually² yet has minimal physical space for its waste disposal due to its dense population. As a result, NYC annually spends \$300 million to discard its partially recyclable MSW in landfills located primarily in Ohio, Virginia, Pennsylvania, and New Jersey. The transportation of this waste results in an equally alarming production of greenhouse gases. NYC residents only further exacerbate the negative ramifications of improper waste disposal, as they recycle at significantly lower rates than commercial centers, such

KEY FACTS

- Each year, NYC generates 14 million tons of waste that is primarily sent to landfills in nearby states. However, approximately 40 percent of the waste NYC residents generate is recyclable and 28 percent is compostable.²
- Residential recycling rates are significantly lower than those of commercial centers, partially because residents are not charged for waste disposal while commercial centers are charged. This suggests that introducing a price on waste disposal would increase residential recycling rates.
- NYC annually spends \$300 million on hauling waste to landfills. In the process, this generates 679,000 metric tons of greenhouse gases, comparable to adding more than 133,000 vehicles to the roads.²

as restaurants. This may partially be due to the fact that commercial centers are charged for their waste, while residents are not. Currently, NYC is forced to spend \$2.2 billion to handle the MSW generated in residences across the five boroughs.

NYC should enact policy that allows for free recycling and composting disposal within residential buildings, while charging a fixed rate for each standard-size bag of MSW generated by its residents. Specifically, NYC should charge a rate of \$20 per six tax-free garbage tags that residents could purchase, improve its free recycling pick-up services, and introduce comparative composting.

ANALYSIS

These policies have proven effective in reducing unsustainable practices around the country. By adopting a policy that incentivizes sustainable waste management, NYC could significantly decrease the amount of landfilling and thereby cut its own costs.

In Ithaca, NY,³ for example, residents regularly sort their waste and recyclables.

By separating these items and applying a fee on each bag of non-recyclable waste, residents are encouraged to recycle more. Similarly, in NYC, all 8.4 million residents could follow suit. Further, there currently are 35 “Green Markets” in NYC that accept compost, but no pick-up services exist. Introducing composting pick-up service would have the potential to remove a maximum of 600,000 tons of food waste that is normally deposited as landfill-bound waste.⁴

TALKING POINTS

- NYC has the capacity to be a recognized leader in reducing the overwhelming amount of waste that the U.S. contributes to the world.
 - Diverting reusable materials from landfills to centers that execute recycling programs would have an enormously positive financial and environmental impact in NYC.
 - In light of the serious concern for rising greenhouse gas emissions, introducing policies that would reduce the amount of waste sent to landfills needs to be a high priority for NYC policymakers.
-

Together, these policies have the potential to reduce the \$300 million NYC spends on MSW management and have an environmental impact equivalent to taking 133,000 cars off the road in a given year.²

Next Steps

The City Council should adopt a bill that mandates residents to pay for their MSW while improving free recycling and composting services. NYC should create a budget for printing and distributing tags and marketing the new services to residents, and increase the availability of trucks to pick up recyclable and compostable materials. These actions should be introduced gradually to provide residents an opportunity to adjust.

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Preventing Hunting Tragedies: Making Vermont's Roads and Trails Off-Limits

Alex Newhouse, Middlebury College

With most public land and hiking trails open to hunters, and roads minimally protected, Vermont's hikers and travelers are at risk from stray shots.¹ To ensure the safety of non-hunters, the state should extend a no-hunting buffer of 300 feet from roads and Vermont's most popular hiking trails.

Hunting is engrained in Vermont's culture. As such, the state has long given hunters the freedom to hunt nearly anywhere. Public and private land is almost entirely open to hunting, and many private organizations have made their land readily available to hunters.² But whereas many states have enacted legislation to protect highways, roads, and trails, hunting in Vermont is allowed only 25 feet away from well-traveled roads.³ Hunting is also allowed and encouraged along popular hiking paths such as the Long Trail and Vermont's portion of the Appalachian Trail. As a result, Vermont hiking guides warn hikers to take all necessary precautions on trips during hunting seasons.⁴

Hunting accidents have decreased over the last few years due to increasingly strict hunter education laws,⁵ but the risk still remains present within the state. Between 2004 and 2011, Vermont's tourism increased ten percent, an increase of over one million visitors per year.⁶ Considering this, and that there has been a corresponding rise in the number of people hiking on the Appalachian and Long Trails each year,⁷ the state should take preventive action to offset this danger.

The state of Vermont should enact legislation that creates a buffer zone of 300 feet around

KEY FACTS

- Hunting is currently permitted on popular hiking trails in Vermont, and only 25 feet from major highways.¹¹
- Shotguns and rifles generally have effective ranges over 25 feet.¹²
- 13.9 million visitors — often uninformed about the risk of hunting accidents — came to Vermont in 2011, and this number is increasing every year.¹³

popular hiking trails and all classified public roads. The new “no-hunt zones” should be enforced by Vermont game wardens. Designated hunting trails, unmarked trails, and Wildlife Management Areas maintained by the state should be exempt from this policy.

ANALYSIS

This extension of the buffers would immediately increase hiker safety along Vermont’s trails as well as travelers along roads, as it would place the travelers out of effective range of most shotguns. The accepted maximum effective range of most shotguns shooting buckshot is 120-240 feet, depending on the composition of the shotgun. Guns shooting slugs have a longer range, up to 300 feet, but the 300 foot buffer will place hikers out of the lethal range of most of those as well.⁸ Although the possibility exists that a hunter might be unaware of the new regulations, Vermont statutes make it clear that hunters must be familiar with new laws upon application for licenses.

Some hunting communities may oppose this legislation and argue that trails and roads provide the best access to good hunting grounds. However, it is of the utmost importance to protect people from unforeseen and unknown, but avoidable, danger. With millions of visitors each year, it is important to make Vermont welcoming and safe.⁹

Finally, the state of Vermont still contains huge swaths of backcountry land open to hunting. Extending a buffer around the entirety of the extremely popular 272-mile Long Trail would only reduce the 1250 square miles of available hunting land by at most 30 square miles.¹⁰ Creating buffers around roads and the most popular trails would reduce the total amount of hunting land insignificantly.

TALKING POINTS

- Creating a buffer zone of 300 feet along hiking trails and roads would put hikers out of range of most shotguns.
- Prohibiting loud, disruptive hunting in extreme proximity to trails and reducing the need to warn hikers of the risk of hunting accidents would encourage tourism.
- Hunting lands would be untouched in Wildlife Management Areas and not meaningfully impacted elsewhere.
- The safety of hikers outweighs the desires of hunters to hunt from trails and roads.

Next Steps

The Vermont state legislature should start by investigating which trails are most important to protect and then create an amendment to Statute 4705 of Title 10, Chapter 113: Game to create these buffer zones. Further action will be necessary to fund increased game warden policing around new buffer zones and to determine which hiking trails will be protected. The government should focus on what will protect hikers while also not overly restricting the operations of hunters.

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Closing the Loophole: Protecting the Midwest With Hydraulic Fracturing Regulation

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In the American Midwest, hydraulic fracturing is an important enterprise with countless stakeholders. The “Halliburton Loophole” exemption clause hinders proper regulation that would promote the benefits of fracking while protecting communities that the Clean Water Act was intended to protect.

Fracking increases the energy supply and reduces energy prices. However, unregulated, it threatens public health and the environment by risking drinking water contamination and earthquakes.

The Energy Policy Act of 2005 contains a provision known as the “Halliburton Loophole,” which makes fracking exempt from the Clean Water Act’s safe practice requirements and allows companies to wrongfully inject wastewater underground. The Great Lakes Compact contains a similar exemption clause.¹ This has blocked the regulation of fracking in the region and puts the environment and public health at acute risk.

The Great Lakes Compact, an agreement between Midwest states, seeks to properly manage the use of the Great Lakes’ water supply. It requires annual reports on water levels, compositions, and uses⁹ to ensure there is enough clean water for the Midwest.

The Halliburton Loophole should be closed and a three-pronged regulation approach

KEY FACTS

- A 4-million-gallon fracking operation uses between 80 and 330 tons of chemicals, including carcinogens and toxins like lead and uranium.¹
 - Water treatment facilities in Pennsylvania are unequipped to treat many flowback contaminants.²
 - Despite EPA protections, wastewater from fracking was injected into clean aquifers in California.²
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instituted. An oversight committee of industry professionals and environmental scientists should determine the environmental impact of each Midwest well. The industry should be held to legal standards to limit contamination, pollution, and subsurface damage. All findings and environmental reports should be made public in order to create transparency that will hold violators accountable and assist with future policy options.

ANALYSIS

The 940 million barrels of oil⁴ in the Utica Shale² have created 200,000 Ohio jobs in the natural gas industry and helped Ohio contribute 4.7 percent to U.S. energy production in 2012.⁴ Oil and natural gas outputs will increase economic activity by \$10 billion per year and tax revenue by \$500 million.⁵ These industries provide livelihoods for many Midwesterners and overly constrictive limitations would damage local economies.

Many fracking enterprises use up to 5 million gallons of Great Lakes water per well.¹ The volume of water used and its reintroduction into the Great Lakes demands regulation for fracking.

The United States Geological Survey found that seismic activity increase was correlated with injecting fracking wastewater in disposal wells and that unregulated fracking practiced on a larger scale over a longer timeframe will cause more devastating earthquakes. This injection was likely the cause of large earthquakes in Colorado and Oklahoma in 2011.⁷

TALKING POINTS

- The Clean Water Act makes fracking exempt from regulation.
- Each well uses about 5 million gallons of water, which is reintroduced to the water supply or disposed in leak-susceptible underground sites.
- Fracking is widely practiced in the Midwest, which contains 84 percent of North America's water supply.⁶
- The Utica Shale contains 940 million barrels of oil, suggesting that fracking will continue to grow in the region.

Next Steps

The Halliburton Loophole should not apply to the Great Lakes Compact because of the tremendous stakes in the Midwest fracking industry and the threat to a major water supply. Federal and state legislative action will be required for regulation. Fracking should be subject to oversight, limitations, and transparency. The industry will remain profitable and environmental damages should be limited. Enduring ground-level student and community organizing as well as Environmental Protection Agency (EPA) oversight will further the cause.

ENDNOTES

- 1 Clean Water, "Fracking: Laws and Loopholes," Clean Water Action, 29 Nov. 2014, <http://cleanwater.org/page/fracking-laws-and-loopholes>
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- 4 U.S. Energy Information Administration, State Energy Data System, "Ohio: State Profile and Energy Estimates," U.S. Energy Information Administration, 27 Mar. 2014, <http://www.eia.gov/state/?sid=OH>
- 5 Andrew R. Thomas, et al, "An Analysis of the Economic Potential for Shale Formations in Ohio", (Ohio: The University of Ohio Press, 2014)
- 6 Environmental Protection Agency, "Basic Information", Environmental Protection Agency, July 5, 2012, <http://www.epa.gov/greatlakes/basicinfo.html>
- 7 United States Geological Survey, "Induced Earthquakes", United States Geological Survey, Nov. 29, 2014, <http://earthquake.usgs.gov/research/induced>
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- 9 Stephen Stock, et al., "Waste Water from Oil Fracking Injected into Clean Aquifers", NBC Bay Area, Nov. 14, 2014, <http://www.nbcbayarea.com/investigations/Waste-Water-from-Oil-Fracking-Injected-into-Clean-Aquifers-282733051.html>

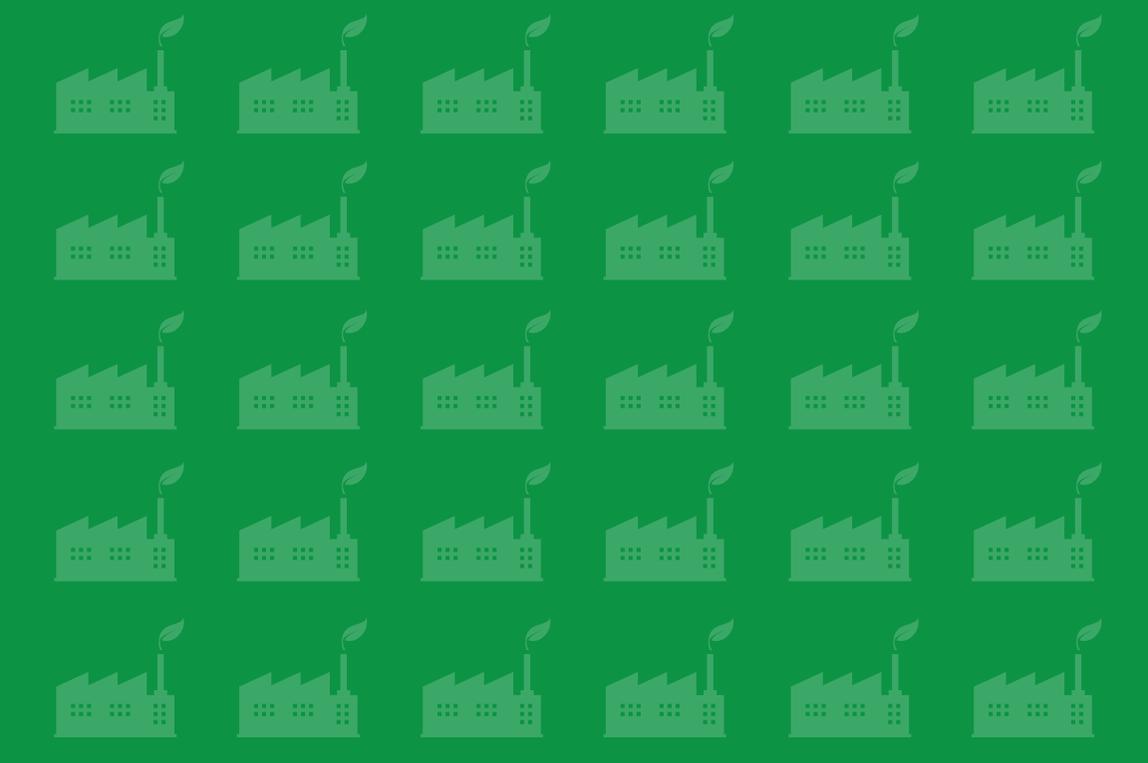


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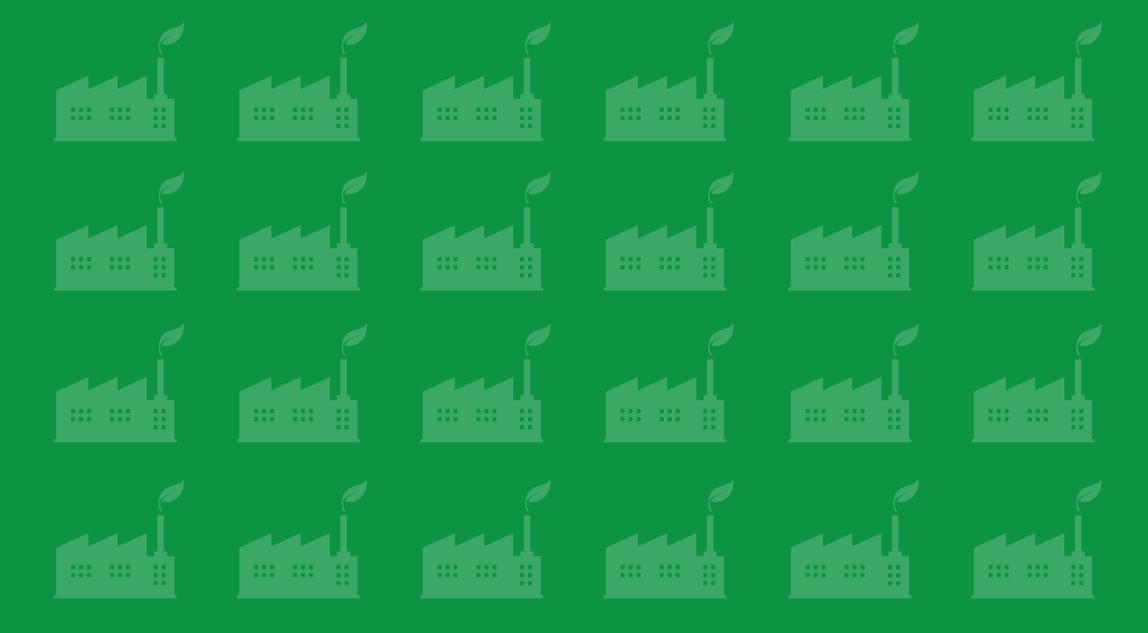
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