

The Green New Deal: Economic Analysis and Practical Policy

Jonathan M. Harris

Visiting Scholar, Tufts University Global Development and Environment Institute
Senior Research Fellow, Boston University Economics in Context Initiative

jonathan.harris@tufts.edu

<http://ase.tufts.edu/gdae>

<https://www.bu.edu/eci/>

1. Introduction

The essential concepts of what is referred to as a “green new deal” have been discussed by ecological and Post Keynesian economists for some time. A Green New Deal (GND) proposal was formally introduced as a resolution in the 116th U.S. Congress in 2019, and reintroduced in the 117th Congress in 2021. The concept thus gained some political traction, and has since led to legislation in both the United States and Europe incorporating some of its proposals. The exact content and policy feasibility of various green new deal proposals has been subject to much debate. In this discussion, there remains a tension between concepts of “green growth” and limits to growth or “degrowth”. Theorists proposing a green new deal have attempted to resolve this tension.

Major stated goals of a green new deal include:

- Transformation to a low-carbon economy including renewable energy sources and energy efficiency;
- Protection and restoration of forests and wetlands;
- Sustainable farming and soil restoration;
- Expanding employment in renewable energy, energy efficiency, infrastructure investment, ecological resilience, and water management, among other areas

There is a theoretical basis for this program. A “green Keynesian” approach combines a radical Keynesian analysis with ecological priorities such as drastic carbon emissions reduction (Harris, 2013). This approach delinks traditional economic growth, largely based on fossil energy and resource input-intensive techniques, from employment creation and expanding well-being. In part this is a technological issue of employing “green”, renewable, and resilient technological options, and in part it represents a shift in consumption patterns from energy-intensive to energy-conserving and service-oriented forms of consumption.

This combination of changes on the supply and demand sides of the economy enables, for example, large scale reduction in carbon emissions through “lowering the ceiling” of total energy

consumption while “raising the floor” of renewable energy supply. This provides an alternative to assertions both by growth proponents who favor expanded traditional economic production, and by proponents of “degrowth” who argue that only radical reductions in consumption and economic growth can achieve ecological balance.

Despite this potential, many popular presentations of the green new deal have suffered from excessively broad aspirational rhetoric, making it difficult to discern which of the stated goals are feasible. The Congressional resolution (which never passed) was not legislation but a general statement of principles. It proposed a ten-year time frame – clearly insufficient to achieve many of its more ambitious goals. In addition to climate and environmental goals, it included broader issues such as universal health care and guaranteed employment, and was vague on the question of costs as well as budget and deficit implications.

In practice, significant aspects of the green new deal approach were adopted in two major acts that passed the U.S. Congress and were signed into law: the Infrastructure Investment and Jobs Act (IIJA) of 2021 and the Inflation Reduction Act (IRA) of 2022. Despite the title of the latter, its main purpose was not inflation reduction but energy and climate policy, along with health care provisions. The Inflation Reduction Act included a substantial part of the Biden administration’s original Build Back Better program, but was trimmed down to achieve Congressional passage.

The IIJA, passed on a bipartisan basis, included a significant number of “green” investment provisions including public transit, passenger and freight rail, zero- and low-emissions buses and ferries, electric vehicle chargers, and upgrades to the electric grid and water infrastructure. The IRA, adopted through the “reconciliation” process with Democratic votes alone, featured \$369 billion in spending on investments related to renewable energy and climate policy “to accelerate the transition to a clean energy economy”. It also funded \$19.5 billion in Agriculture Department programs to promote regenerative and climate-friendly agricultural techniques (Qiu, 2022).

To justify its “inflation reduction” moniker, the IRA also included \$737 billion in new revenues through increased corporate and stock buyback taxes, and more effective tax enforcement, especially targeting high-income tax evasion. The bill thus has the effect of reducing the Federal deficit, with at least a slight anti-inflationary effect (U.S. EPA, 2023; Penn Wharton, 2022; Congressional Budget Office, 2022). During the same period that green new deal initiatives were being considered, and partially adopted, in the United States, the European Commission adopted a package of policy initiatives known as the European Green Deal. The stated goal of this plan was to make the European Union climate-neutral by 2050. It included a series of initiatives aimed at rapidly reducing greenhouse gas emissions and boosting energy efficiency, as well as promoting biodiversity and sustainable agriculture. The aim was to mobilize over \$100 billion euros per year over the next decade for sustainable development by “increasing the resources devoted to climate action under the EU budget, and leveraging additional public and private financing” (European Parliament, 2020).

Thus important elements of a “green new deal” are already in place in the U.S. and Europe. Critics from differing perspectives have argued both that these initiatives are too ambitious and expensive, and that they do not go far enough to address climate and ecological crises. An application of green Keynesian analysis can offer some insights into how green new deal measures may be able to achieve both economic and ecological goals, subject to both physical/ecological and economic constraints.

2. Keynesian Economics, the original New Deal, and the Post Keynesian revival

The original New Deal under Franklin Roosevelt was not a direct application of Keynesian theory. Its origins were more as a pragmatic response to high unemployment, but its fundamental principles were consistent with the then-revolutionary theories by which Keynes justified the need for government intervention in a depressed economy. Important aspects of the theory included the direct effect of government employment and government spending, as well as the indirect, or multiplier, effects leading to additional economic activity and employment creation. Interestingly, the original New Deal had a significant “green” aspect. Programs such as the Civilian Conservation Corps provided employment in natural resource and conservation areas including erosion and flood control, forest protection and planting, and streambed protection, while agricultural extension programs sought to promote crop rotation and soil restoration (Merrill, 1981).

The basic insight of Keynesian economics was that a social investment function was required in a market system. As Keynes emphasized in the “Concluding Notes” to the *General Theory of Employment, Interest, and Money*, “the outstanding faults of the society in which we live are its failure to provide for full employment and its arbitrary and inequitable distribution of wealth and incomes” (Keynes, 1964 [1936], p. 372). Environmental issues were not central to Keynes’ original theory, but are an obvious example of the shortcomings of an unregulated market system. Thus it was quite logical, as the architects of the New Deal looked for opportunities to promote employment through social investment, for natural resource conservation to be one of the areas of focus.

Keynesian approaches fell out of favor with many economists during the period of “great moderation” from the 1980s to 2007, during which economic volatility seemed to recede. Even though the more stable economic situation during these years arose in large part from the long-term “automatic stabilizing” effect of institutionalized government spending on programs such as Social Security and Medicare, many economists felt that macroeconomic problems had been largely solved, so that Keynesian interventionist policies were no longer needed. Robert Lucas of the University of Chicago famously declared that the “central problem of depression-prevention has been solved” in his 2003 presidential address to the American Economic Association (Krugman, 2009). The fiscal crisis of 2007-2008, leading to what has been termed the “Great Recession of 2007-2009, shattered this mainstream consensus and motivated renewed attention to Keynesian theory and policy.

In particular, the Obama stimulus program of 2009-10 followed a well-established Keynesian pattern. It also had a significant environmental component. In part the stimulus package was directed towards traditional types of spending such as highway maintenance, but a significant portion (about \$71 billion) was specifically oriented towards “green” investments, together with another \$20 billion in “green” tax incentives (Jacobs and McNish, 2009).¹ An analysis by economists Alan Blinder and Mark Zandi in 2010 found that the Obama stimulus “probably averted what could have been called Great Depression 2.0... [W]ithout the government’s response, GDP in 2010 would [have been] about 11.5 percent lower [and] payroll employment would be less by some 8½ million jobs” (Blinder and Zandi, 2010).

Just as the Great Depression forced the economics profession to abandon strict classical principles, the Great Recession and the subsequent Covid recession of 2020 required a reorientation of theory and policy. Post Keynesians have presented an alternative perspective that is in some respects simply a restatement of fundamental Keynesian principles: the macroeconomy does not necessarily tend to full employment, and government intervention may be required to maintain adequate effective demand. This, of course, is exactly what was demonstrated in both the Great Recession and the Covid recession.

In addition, Post Keynesians emphasize the role of economic inequity and the inherent instability of the financial system, following theories derived from Kalecki (class inequality) and Minsky (financial instability). These theoretical elements also have obvious current relevance. Post Keynesian economists’ skepticism about the efficiency of markets and price mechanisms also predispose them towards environmentally oriented macroeconomic policy including government-led “green” investment (King, 2015).

The history of economic theory and policy thus shows a significant overlap between Keynesian and Post Keynesian economics and environmental concerns. This offers a substantial basis for current Green New Deal proposals (Harris, 2013). Because environmental issues today, especially but not only climate change, are much more pressing than in the past, a modern version of the New Deal needs to find its theoretic foundation not only in updated Keynesian analysis, but also in broader Post Keynesian and ecological economics perspectives.

3. Ecological Economics and the Green New Deal

Ecological economics, as distinct from mainstream environmental economics, is based on a specific and powerful insight: the economy, as a subsystem of the planetary ecological system, is fundamentally limited by the physical realities of that planetary system. This has always been true, but it was possible to neglect the implications of this basic truth so long as human economic activity was at a relatively low level relative to planetary capacity—allowing economic theorists

¹ Specific provisions included energy efficiency in government facilities (\$8.7 billion); smart-grid infrastructure investment (\$11 billion); energy and conservation grants to state and local governments (\$6.3 billion); weatherization assistance (\$5 billion); energy efficiency and renewable energy research (\$2.5 billion); grants for advanced battery manufacturing (\$2 billion); loan guarantees for wind and solar projects (\$6 billion); public transit and high-speed rail (\$17.7 billion); environmental cleanup (\$14.6 billion); environmental research (\$6.6 billion).

to take what Herman Daly has referred to as an “empty world” rather than a “full world” perspective (Daly, 1999). In Keynes’ time, this was basically still true. Although there was significant evidence of environmental degradation, giving rise to the resource and conservation concerns mentioned in connection with the New Deal, the overall pressures of global population and economic activity were far less than today.

Since about 1950, there have been staggering increases in global population, energy use, and carbon emissions—more than threefold for global population and more than six-fold for energy use and carbon emissions (Harris and Roach, 2022). While the most obvious and widely known result of this is the current climate crisis, parallel crises have emerged in terms of other resources, including water resources, forests and wetlands, agricultural soils, ocean pollution, fisheries decline, and biodiversity loss. Even assuming optimistic forecasts of population stabilization, these consumption-generated pressures on the global ecosystem can be reliably forecast to increase further during the twenty-first century.

This broader perspective implies that a more drastic change will be required in the nature of economic production than was envisioned in the original Keynesian perspective. Keynes assumed that the goal of government policy was to promote full employment and economic growth. While he speculated about an eventual end to standard economic growth in his essay on “Economic Possibilities for Our Grandchildren” (Keynes, 2009 [1930]), this was not an immediate concern in an era of mass unemployment, nor was it a concern for the policymakers who applied Keynesian economics on a broad scale following World War II. The ecological economics perspective, in contrast, implies that an extraordinary reorientation will be required as the period of steady economic growth, characteristic of the past 200 years and especially of the last 75 years, necessarily comes up against firm ecological limits.

Does this mean an end to economic growth? The issue is a bit more complicated:

There is an extensive debate on the possibility of achieving “absolute decoupling” – reducing overall resource inputs, specifically carbon-based fuels, while “growing” the economy. Advocates of “degrowth” argue that absolute decoupling is unlikely to be possible, meaning that consumption must be reduced if carbon reduction targets are to be achieved. But regardless of whether we anticipate only “relative decoupling” – reducing the carbon intensity of the economy – or absolute decoupling, some form of green Keynesian policies will be essential to redirect economic activity away from a carbon-intensive path (Harris, 2019, p. 4).

A Green New Deal, then, has to envision an economic transition at least as sweeping as that of the original Keynesian revolution, and likely more so. This transition necessarily involves drastic changes both in the structure of production and consumption. It is notable that the full impact of Keynesian policies were only felt with the onset of World War II—a massive transformation of national and global economies—and the permanently altered pattern of government economic involvement in the post-war period. If we take into account the full implications of the ecological economic perspective, the next stage of economic development will necessarily reflect an even greater realignment of economic production—but in a quite different direction.

4. Fundamental Goals of a Green New Deal

The first goal of Green New Deal (GND) proposals is an energy transformation to a low-carbon economy. One version of the GND by Data for Progress calls for 100% renewable electricity by 2035, and zero net emissions for energy by 2050. Related goals include 100% net-zero building energy standards by 2030, dramatic increases in efficiency standards for appliances, lighting, and equipment, 100% zero-emission passenger vehicles by 2030, 100% fossil-fuel free transportation by 2050, and reducing methane leakage 50% by 2030 (Carlock and Mangan, 2018).

An important, and neglected, element of climate policy is the management of forests, wetlands, and soils. GND goals cited by Data for Progress include the preservation of existing forests and reforestation of 400 million acres of public and private land by 2035. Wetland preservation and restoration is another critical component. Wetlands are extremely efficient at carbon storage, and wetland loss is a significant cause of increased carbon emissions (Moomaw et al., 2019; Finlayson, 2019). Agriculture is a major contributor to carbon and methane emissions, as well as to pesticide and fertilizer pollution degrading waterways and oceans, but sustainable agricultural practices promoting healthy soils have the potential to turn the agricultural sector into a major net carbon sink (Codur and Watson, 2019).

A third major focus for the GND is infrastructure investment. In addition to infrastructure investment related to the low-carbon energy transition, major investment is urgently needed in water, sewage, transportation, and waste management. A single example gives a sense of the scope of the issue. New Jersey's largest lake, Lake Hopatcong, has recently been closed to recreational uses due to a major bloom of toxic blue-green algae – a problem that affects many inland and coastal waters. The causes include climate change, leading to more intense rainfall, and “older sewer and stormwater systems that have been overwhelmed by fast-moving storms. . . . the Environmental Protection Agency has put the cost of upgrading New Jersey's stormwater system at \$16 billion” (Barnard, 2019, p. 1). A price tag of \$16 billion, for one major problem in one state, strongly suggests many hundreds of billions in needed infrastructure investment nationwide.

Policies to achieve GND goals can be roughly divided into three areas:

- (1) Redirection of existing economic activity and investment. These policies could include carbon taxes, elimination of “perverse” subsidies for carbon emissions and resource extraction, subsidies for renewable energy or sustainable agricultural and forestry practices, establishing strong fuel and building efficiency standards, renewable energy portfolio standards, and stronger environmental regulation.
- (2) New public investment in renewable energy, energy efficiency, water and sewer infrastructure, public transit, research and development of new renewable technologies and battery storage, electrical grid integration and modernization, public trust funds for community resilience and land protection programs.
- (3) Employment creation programs, overlapping with (2) but also including human resource areas such as health, education, and community services.

Green policies adopted in the United States and Europe include all of these, with substantial public investment accompanied by environmental subsidies and stronger efficiency standards. Carbon taxes have generally not been adopted, although the EU has an existing carbon trading program that will be ramped up to achieve a more ambitious goal of a 55% reduction in carbon emissions by 2035 (European Environment Agency, 2021).

5. Budget Implications of a Green New Deal

The goals of the GND are extremely ambitious, but do not necessarily involve high economic costs. Many environmental problems arise from the exploitation of “free” or low-priced natural resources. Putting a proper price on these resources can be consistent with both good economic theory and sound ecological principles, and generally implies a shift in economic techniques and activities rather than an absolute cost. In some cases, greater efficiency in resource use can save money as well as reduce ecosystem impact.

While proper pricing of resources can generate significant revenue streams, carbon taxes and other resource taxes are generally regressive. A portion of the revenue stream associated with them therefore needs to be channeled into individual per capita rebates (which have the effect of changing the net tax impact from regressive to progressive or at least proportional), or into social investment that primarily benefits lower-income individuals and families, such as health care and education. Another approach, implemented in the U.S. Inflation Reduction Act, is to raise corporate taxes or close tax loopholes to provide funding for the green transition.

To the extent that necessary infrastructure investment is not covered by carbon tax, cap-and-trade, or corporate tax revenues, it will need to be funded out of general government budgets. According to standard Keynesian theory, at times of severe recession government deficits are acceptable and indeed necessary to counter a deficiency of private investment. But at times of relatively high employment, budget deficits should be reduced or eliminated. In the U.S., this implies at a minimum reversing most of the 2017 tax cuts, especially those for upper-income individuals, and closing loopholes. Another option is a financial transaction or “Tobin” tax, set at a very low rate but with significant revenue potential due to the high volume of financial transactions.

Opponents of a GND argue that its implementation will be enormously costly and require government takeover of major economic functions (Ip, 2019). Some formulations of the GND, including expansive goals and “add-ons” such as the concept of guaranteed jobs, have lent credibility to these critics. But in fact, implementation of a GND can be flexible and does not necessarily involve high costs.

GND investment policies can both promote employment and advance a transition to a more environmentally sustainable economy at relatively low cost in terms of national budgets and GDP. While the total costs of the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA), at \$1.2 trillion and \$369 billion respectively, sound fairly large, this spending is spread over a ten-year period, and in the case of the IRA is more than offset by \$737 billion in new revenues. In the context of an annual Federal budget of over \$6 trillion, these are not very

large amounts, and the IRA, as noted above, is projected to achieve an actual decrease in the Federal deficit. A “greener” economic view, taking into account ecological benefits including both climate and collateral pollution reduction benefits, implies that the policies required to promote a massive transition to renewables and greater energy efficiency could overall be considered a net benefit, not a net cost.

An important issue in assessing costs is the standard economic principle of increasing marginal cost. This implies that the initial costs are the lowest, and indeed in the case of greenhouse gas abatement costs a major study by McKinsey & Company found that the costs of abating up to about a third of total emissions were *negative* – implying that for these abatement programs, especially increasing energy efficiency, economic advantages outweighed costs even without considering environmental gains. The second third involved relatively low cost, less than \$20 per ton of CO₂ equivalent. On a global scale, the total cost of reducing 2030 emissions by 35% compared to 1990 levels, or 70% compared with business-as-usual levels, would be less than 1% of global GDP (McKinsey, 2009 and 2013).

It would thus be a major mistake to reject the GND based on an inflated estimate of its total potential cost. Unfortunately some of its early advocacy, linking GND to broad goals of guaranteed employment and health care, encouraged just that perception: that it would involve trillions of dollars in immediate new spending. Many GND policies, as noted above, would require minimal spending and deliver net benefits in terms of employment and environmental advances.

In terms of carbon reduction, the higher costs would potentially come later: 35% reduction would be relatively cheap, 100% could be expensive. By trumpeting a 100% goal within the unrealistically short period of ten years, early advocates did the program a disservice. The Biden administration approach, with an emphasis on energy efficiency, incentives for a transition to renewables, and employment generation, will demonstrate employment and environmental benefits from early rounds of investment and incentives, and can be ramped up over time.

Early investments in research and development of areas such as battery storage and low-carbon techniques for steel, cement, aviation, and maritime shipping can lower the costs of reaching more ambitious carbon reduction goals (Davidson, 2022, pp. 119-121). Mark Jacobson suggests that with improved storage capacity, a wind-water-solar electric generation system can ultimately replace 100% of fossil fuel power generation, while electrification of transport can largely eliminate fossil fuel use in that sector (Jacobson, 2023). A Green Keynesian analysis suggests that the overall effects will be both economically and environmentally beneficial, even though higher levels of investment spending would be involved to achieve the eventual net zero goal.

6. Job-creating Impacts of a Green New Deal

Several studies of the impact of the Inflation Reduction Act confirm its positive impacts on employment, income, and energy efficiency. According to the Energy Futures Initiative (EFI),

modeling the impact of the IRA indicated “the unique benefits that well-directed energy investments can have simultaneously on job growth, GDP, real disposable income, inflation reduction, targeted sectoral energy costs, and greenhouse gas emissions reduction” (Foster et al., 2023). The EFI model indicates that the IRA will expand employment in the U.S. economy by 1.5 million jobs by 2030, with much of this increase coming in the first three years of implementation, representing a permanent gain rather than short-term employment.

Another study by the Political Economy Research Institute (PERI) at the University of Massachusetts-Amherst similarly finds a permanent job improvement, measured at just under a million jobs per year over a 10-year period, for a total job creation of 9.1 million job-years over the period (Pollin et al., 2022). The permanence of the job creation is an important feature, since construction of new power facilities often involves a number of short-term jobs in construction, but few long-term employment benefits.

The job-creation effects are a combination of public and private spending. In the PERI study, \$40.6 billion in public spending per year is assumed to be matched by \$57.8 billion in private spending for a total of \$98.4 billion per year. The incentives for private spending include tax credits for electric vehicles and renewable energy investment, as well as loan guarantees and a national Green Bank underwritten by the Federal government. According to the EFI study, the “domino effect of energy investments speaks to the important role that energy plays in the architecture of modern industrial economies. When combined with public policies that support job quality and access, energy investments can also result in greater social equity” (Foster et al, 2023, page iv).

The projections of these studies are being borne out by the early record of the IRA in job creation. A CNBC article based on a report by the nonprofit Climate Power, finds that more than 100,000 new clean energy jobs were created in the first six months after passage of the IRA:

In the six months since the landmark climate and clean energy investments became law, clean energy companies have announced more than 100,000 new clean energy jobs for electricians, mechanics, construction workers, technicians, support staff, and many others. As of the end of January [2023], companies have announced more than 90 new clean energy projects in small towns and larger cities in the U.S., totaling \$89.5 billion in new investments. The wind, solar and EV manufacturing sectors are creating the new positions, which include electricians, mechanics, construction workers and technicians. Plans include 40 new battery manufacturing sites in states like Arizona, Michigan and South Carolina, according to Climate Power. So far, 22 companies have unveiled plans for new or expanded EV manufacturing in Alabama, Oklahoma and Michigan. And an additional 24 companies have released plans to expand wind and solar manufacturing in Colorado, Ohio and Texas” (Newburger and Cortés, 2023 p.1).

7. Achieving Emissions Reduction and Social Equity Goals

The greenhouse gas emissions reduction expected from the full implementation of the IRA is about 37% relative to a 2005 baseline, according to the EFI study. But the authors also note that additional reductions could be achieved from non-energy sources including agriculture, land use, and forest management, as well as direct carbon removal and waste management. “Such initiatives, supplemented by complementary state policy and regulation, could credibly increase emissions reduction to 50% by 2030” (Foster et al., 2023, p. iv). The IRA thus puts in place policies that can achieve a significant portion of GND goals, both in terms of emissions reduction and job creation.

But it is also true that the IRA falls well short of what is needed to respond fully to the climate crisis. According to Robert Pollin, lead author of the PERI study, “[t]he Inflation Reduction Act is the most significant piece of climate legislation ever enacted by the U.S. government. It is also, in itself, not close to sufficient to move the U.S., much less the global economy, onto a viable climate stabilization path” (Polychroniou, 2023, p 1). Pollin estimates that up to four times as much funding is needed to achieve a 50% emissions cut by 2030 and net zero by 2050. In addition, to gain sufficient political support the IRA was crafted to include expansion of oil and gas leasing as well as gas pipeline permitting – clearly not helpful in reducing overall fossil fuel use.

A related issue is support for carbon capture and storage (CCS). While the IRA does not have fully specified mandates for its funding programs, which means that substantial funding could be directed to carbon capture, a controversial and commercially unproven technology that would, in theory, permit continued use of fossil fuels at the expense of funding for renewable energy. Nuclear energy, which does not involve direct carbon emissions but is associated with nuclear waste and safety problems, also receives funding through IRA. Nuclear has struggled to compete in the marketplace, with the U.S. Energy Information Administration estimating that the “levelized cost”, including construction and operating costs, of nuclear power will be about double that of onshore wind and solar in 2027 (U.S. Energy Information Administration, 2022). Some GND advocates see a possible role for CCS and nuclear, but are generally wary of the danger of exploitation of CCS by the fossil fuel and nuclear industries to delay the development of renewable energy (Davidson 2002, pp. 119-121).

Pollin also points out two other shortcomings of IRA. It does not provide transitional and reemployment programs for communities currently dependent on the fossil fuel industry, and has no funding for the global clean energy transition, something that has been a prominent issue in the international climate negotiation process, as developing nations have protested the lack of support provided both for climate mitigation and adaptation. Promised funds have so far largely failed to materialize, despite pledges by richer nations, and the IRA does nothing to fill this gap. The IRA does contain over \$60 billion in funding dedicated to low-income communities and communities of color, addressing social justice issues within the U.S., but international funding is lacking.

In terms of the emissions reduction and social equity goals of the GND, the IRA is thus at best a partial measure. Its significance lies in being the first substantial climate legislation adopted in the U.S., and in demonstrating that aggressive climate policy can be a strong net positive from the point of view of employment. Similarly, the European Green Deal represents a major step forward, but has been criticized for institutional and funding weaknesses that raise doubts as to whether it can achieve its goals of a 55% emissions reduction by 2030 and climate neutrality by 2050 (European Union, 2022). Both initiatives have helped to bring the Green New Deal into the political mainstream, but much remains to be done to achieve its full potential.

8. Conclusion: Reforming Economic Theory and Policy for 21st Century Realities

The Keynesian revolution in economics took place in the context of unavoidable, massive economic problems of large-scale unemployment. Under these conditions, it became impossible to maintain a “classical” view of a self-regulating *laissez-faire* economy. In a sense, we have come full circle. The very success of the institutionalization of Keynesian policies after World War II made it possible for economists to return to a more classically oriented perspective, downgrading the role of government and blaming government policies for problems such as inflation or low productivity growth. With the currently overwhelming importance of climate and ecological crises, it is once again impossible to ignore what Keynes called the “outstanding faults” of an economic system that lacks any effective mechanism to respond to these crises, and that depends on resource-intensive forms of economic growth that steadily worsen them.

Economic policymakers must adapt to a new reality in which government policy plays an active role in reshaping the economy both to avoid ecological catastrophe and to redress growing inequality and social breakdown. If this necessity is recognized, a wide range of economic tools, including standard Keynesian policy and new approaches such as the Green New Deal, is available to respond.

It is true, as conservative critics point out, that government actions can be wasteful, ineffective, or counterproductive—if poorly designed. But the option of foregoing an active government response is no longer open. Thus the answer to the shortcomings of government policies must be to design effective policies, not abandon the effort or rely on an unregulated “free market” that makes the problems worse. The initial policies being implemented in the United States and Europe are promising, as the analyses reviewed above indicate. Strengthening these policies over time, and adapting them to the international arena, will be essential.

Revised macroeconomic goals should include:

- Rapid reduction of carbon emissions through investment in energy efficiency and renewables, and through increased carbon storage in forest and soils.
- Adaptation to ecological limits to growth, including carbon limits but also sustainable use limits related to water, land, forests, fisheries, and other ecosystems.

- Revenue generation through increased taxes on upper incomes and corporations, carbon tax with partial rebate, and financial transactions tax.
- Using “green” Keynesian policies for infrastructure investment and development of renewable energy technologies.

Economies based on these principles will look different, with more emphasis on human services and less on resource-intensive goods production, significantly lower overall energy use and a vastly expanded renewable energy infrastructure. But there is no reason that a combination of existing policy tools and newer ecologically oriented policies cannot promote prosperity and increased employment opportunities, as well as stabilization of both economic and ecological systems. This is the promise of the Green New Deal, and despite an uneven start, the future is promising—if policymakers learn the right lessons.

References

- Barnard, Anne. 2019. "Algae Bloom Fouls N.J.'s Largest Lake," *New York Times*, August 5.
- Blinder, Alan, and Mark Zandi. 2010. "How the Great Recession Was Brought to an End." <https://www.economy.com/mark-zandi/documents/End-of-Great-Recession.pdf>
- Budget Office. 2012. "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Output from October 2012 through December 2012." Washington, D.C.: Congressional Budget Office.
- Codur, Anne-Marie and Josephine Watson. 2018. "Climate Smart or Regenerative Agriculture? Defining Climate Policies based on Soil Health," Tufts University Global Development and Environment Institute, *GDAE Climate Policy Brief #9*, April. <https://sites.tufts.edu/gdae/climate-policy-briefs/>
- Carlock, Greg, and Emily Mangan. 2018. "A Green New Deal: A Progressive Vision for Environmental Sustainability and Economic Stability." Data for Progress. <https://www.dataforprogress.org/green-new-deal-report>
- Daly, Herman E. 1999. *Ecological Economics and the Ecology of Economics*. Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- Davidson, Eric A. 2022. *Science for a Green New Deal: Connecting Climate, Economics, and Social Justice*. Baltimore: Johns Hopkins University Press.
- European Environment Agency. 2021. "EU achieves 20-20-20 Climate Targets; 55% Emissions Cut by 2030 Reachable with More Efforts and Policies." <https://www.eea.europa.eu/highlights/eu-achieves-20-20-20>
- European Parliament. 2020. "European Green Deal Investment Plan." [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649371/EPRS_BRI\(2020\)649371_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649371/EPRS_BRI(2020)649371_EN.pdf)
- European Union. 2022. "European Green Deal Barometer." <https://think2030.eu/publications/european-green-deal-barometer-2022>
- Finlayson, C.M. et al. 2019. "The Second Warning to Humanity – Providing a Context for Wetland Management and Policy," *Wetlands* **39**: 1–5, February.
- Foster, David, Alex Maranville and Sam F. Savitz. 2023. "Jobs, Emissions, and Economic Growth: What the Inflation Reduction Act Means for Working Families." Energy Futures Initiative Policy Paper, January.

Harris, Jonathan M. 2013. "Green Keynesianism: Beyond Standard Growth Paradigms," in Robert Richardson ed., *Building a Green Economy: Perspectives from Ecological Economics*. East Lansing, Michigan: MSU Press, pp. 69-82.

Harris, Jonathan M. 2019. "Responding to Economic and Ecological Deficits." Tufts University Global Development and Environment Institute Working Paper No. 19-01, April.
<https://sites.tufts.edu/gdae/working-papers/>

Harris, Jonathan M. and Brian Roach. 2022. *Environmental and Natural Resource Economics: A Contemporary Approach*, 5th ed. Chapter 2, "Resources, Environment, and Economic Development", pp. 21-26. New York and Abingdon, UK: Routledge.

Ip, Greg. 2019. "The Unrealistic Economics of the Green New Deal," *Wall Street Journal*, February 13.

Jacobs, Scott, and Rob McNish. 2009. "The U.S. Stimulus Program; Investing in Energy Efficiency" *McKinsey Quarterly*, July 1.

Jacobson, Mark Z. 2023. *No Miracles Needed: How Today's Technology Can Save Our Climate and Clean Our Air*. Chapter 2, "WWS Solutions for Efficient Generation" and Chapter 4 "WWS Solutions for Transportation". Cambridge, UK.: Cambridge University Press.

Keynes, John Maynard. 1964 [original publication 1936]. *The General Theory of Employment, Interest, and Money*. San Diego, New York, and London: Harcourt.

Keynes, John Maynard Keynes. 2009 [original publication 1930]. "Economic Possibilities for Our Grandchildren," *Essays in Persuasion*. New York: Classic House Books.

King, John E. 2015. *Advanced Introduction to Post Keynesian Economics*, Chapter 2, "The Core of Post Keynesian Economics"; Chapter 7, "Why it all Matters: Economic Policy"; and Chapter 9 "Post Keynesians and Other Schools of Thought." Cheltenham, UK and Northampton, MA, USA: Edward Elgar.

Krugman, Paul. 2009. "How did Economists get it so Wrong?" *New York Times*, Sept 2.

McKinsey and Company. 2009 and 2013. "Pathways to a Low-Carbon Economy."
<https://www.mckinsey.com/business-functions/sustainability/our-insights/pathways-to-a-low-carbon-economy>

Merrill, Perry H. 1981. "Roosevelt's Forest Army, A History of the Civilian Conservation Corps." *Forest & Conservation History*, Volume 25, Issue 4, October, pp. 232–233.

- Moomaw, William, Susan Masino, and Edward Faison. 2019. "Intact Forests in the United States; Proforestation Mitigates Climate Change and Serves the Greater Good," *Frontiers in Forests and Global Change*, June.
<https://www.frontiersin.org/articles/10.3389/ffgc.2019.00027/full>
- Newburger, Emma and Gabriel Cortés. 2023. "Inflation Reduction Act has spurred 100,000 new green jobs so far: here's where they are," CNBC, February 7. <https://www-cnbc-com.cdn.ampproject.org/c/s/www.cnn.com/amp/2023/02/07/inflation-reduction-act-which-states-have-most-new-green-jobs-so-far.html>
- Penn Wharton. 2022. "Inflation Reduction Act: Estimates of Budgetary and Macroeconomic Effects." University of Pennsylvania, August 2.
<https://budgetmodel.wharton.upenn.edu/issues/2022/8/12/senate-passed-inflation-reduction-act>
- Pollin, Robert, Chirag Lala, and Shouvik Chakraborty. 2022. "Job Creation Estimates through Proposed Inflation Reduction Act," University of Massachusetts Amherst Political Economy Research Institute. <https://peri.umass.edu/publication/item/1633-job-creation-estimates-through-proposed-inflation-reduction-act>
- Polychroniou, C.J. 2023. "Let's Acknowledge Inflation Reduction Act's Significance—and its Inadequacy." *Truthout*, August. <https://truthout.org/articles/lets-acknowledge-inflation-reduction-acts-significance-and-its-inadequacy/>
- Qiu, Linda. 2022. "Federal Government's \$20 billion Embrace of 'Climate Smart' Farming," *New York Times*, September 26.
- U.S. Energy Information Administration. 2022. "Levelized Cost of New Generation Resources," *Annual Energy Outlook 2022*.
https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf
- U.S. Environmental Protection Agency. 2023. "The Inflation Reduction Act",
<https://www.epa.gov/green-power-markets/inflation-reduction-act>, accessed Feb 16, 2023.