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Ecological contradictions of Labour's Green New Deal*

Luke Neal

Abstract

This paper offers an analysis and critique of the Green Industrial Revolution proposed by the Labour Party in 2019. It identifies this policy as a variant of the Keynesian Green New Deal, which has been interpreted favourably by many socialists as a programme for climate stabilisation and an ecologically restorative, egalitarian organisation of the economy. The Green Industrial Revolution pointed towards a hybrid mixed economy whose main features would have been state policy orientation towards and large investments in renewables, efficiencies and retrofitting; as well as a renewed public sector and reforms to corporate ownership. This was predicated on a contradictory policy of green growth. On the contrary, this paper develops a concept of the critical energy constraints to growth, which highlights how, in terms of its focus on “the national economy” and aversion to major infrastructural changes to reduce energy use, Labour’s programme was insufficient. Nonetheless, its openings and advantages are considered alongside and in light of these contradictions. They suggest the need for economic and ecological policies that recognise both the critical energy constraints to growth and the antagonistic relation between capital and labour internationally.

JEL codes: Q58, Q43, F52, B51

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Abbreviations

AES – Alternative Economic Strategy

CCC – Committee on Climate Change (UK)

EROI – energy return on investment

GDP – Gross Domestic Product

GHGs – greenhouse gases

GIR – Green Industrial Revolution (Labour Party policy 2019)

GND – Green New Deal

LGND – Labour for a Green New Deal (campaign)

TWh – terawatt hours

1. Introduction

The economic and ecological effects of a Green New Deal (GND) are a growing concern in technical, engineering and renewables research communities (e.g. Hernandez et al 2019). Yet the associated environmental, extraction, supply and recycling issues remain inadequately dealt with, even among radical and purportedly internationalist articulations of the programme. This amounts to a failure to acknowledge the nature and scale of the crisis, and endangers the climate-stabilising and ecologically restorative character of the GND as a whole.

Beginning with a reconstruction of those shortcomings as contradictions emanating from the social relations of capital, this paper analyses the high point of the ecological policy of the British Labour Party: the Green Industrial Revolution (GIR) proposed at 2019 general election. Headed by Jeremy Corbyn, John McDonnell and Rebecca Long-Bailey (the Leader of the Opposition, Shadow Chancellor and Shadow Business Secretary respectively), the GIR was a version of the GND of the previous decade (Simms et al), updated and popularised by the Labour for a Green New Deal campaign (LGND 2019a,b,c), among others (Aronoff et al 2019; Lawrence 2019). It is the high point of Labour climate policy given that, as of November 2020, it has retreated into a less ambitious set of green recovery measures (Labour Party 2020), including dropping commitments to nationalisation (Cox 2020). In analysing the ecology of the 2019 programme, this paper contributes to a new interpretation of the crisis of sustainability and green transition processes. This is explored by foregrounding the contradictions of capital accumulation and green growth within the GND in an advanced capitalist “national economy.”

Following a typology provided by Heenan and Sturman (2020), GNDs may be distinguished between those that are pro-market, right-wing nationalist, (a variety of) Keynesian, democratic socialist and ecosocialist; as well as critiques from anarchist or degrowth perspectives. This paper puts forward a reading of Labour’s GIR as one which is Keynesian in form, with ecosocialist aspirations.

Keynesian GNDs typically advocate measures to stimulate economic activity geared towards decarbonisation, and to regulate national and international financial systems. Pollin proposes an investment programme of between 1.5 and 2% of annual global GDP to expand green energy and increase efficiencies. This is thought to produce climate stabilisation through a positive cycle in which higher economic growth means an increased “rate at which clean energy supplants fossil fuels, since higher levels of GDP correspondingly mean a higher level of investment being channelled into clean-energy projects” (Pollin 2018: 10). This adheres to New Dealism through policies to support income, retraining and relocation; guarantees of pensions; and transition programmes for fossil-fuel dependent communities (Pollin 2018: 18). Other significant features are its combination of private and public investment strategies, reinforced via preferential taxes for green investments; industrial policies including fossil fuel and green energy price regulation; R&D and government procurement; a carbon tax or a cap on permissible emissions, contributing to downward wealth distribution; and public banking

inspired by the Kreditanstalt für Wiederaufbau (Pollin 2016; 2018: 19). Economies may continue to grow on the crucial assumption that “the growth process is absolutely decoupled from fossil-fuel consumption” (Pollin 2018: 9). A degrowth agenda is perceived as unviable since it would hinder both effective decarbonisation and reductions to inequality. The Keynesian GND thus openly advocates “green growth” and posits (however implicitly or inadvertently) an infinite valorisation of nature.

Writing in the Keynesian tradition, Pettifor seems to call for a mixed capitalist economy without quantitative economic growth (similar to Daly 1996) – a contradiction in terms (Magdoff and Foster 2011: 43). Although she attempts a theoretical break with the growth logic underpinning post-Keynesian economics, her ecology is still contained to a view in which decarbonisation is the dominant concern, alongside a vague intention to “avoid exceeding the limits of the ecosystem” (Pettifor 2019: 107).

The ecosocialist conception of the GND departs from many of the theoretical premises of the Keynesian programme while maintaining large areas of overlap in terms of immediate measures. Deeper economic transformations are reflected in the call for decommodification, democratisation, decarbonisation and decolonisation (DSA Ecosocialists 2019). Armed by the GND programme with an ecological politics for the working class that rejects the jobs versus environment dichotomy (Huber 2019), a strategy based on class struggle “opens up a potentially revolutionary space” (Heenan and Sturman 2020). Schwartzman and Schwartzman (2018) take the Keynesian programme of green growth and put it in a class struggle perspective, with the steady-state economy as the eventual outcome of a lengthy transition process in which total energy use does not shrink.

Other ecosocialist versions of the GND offer a more congenial “possible point of convergence between the degrowth and GND narratives” (Mastini, Kallis and Hickel 2021), such as Aronoff and co-authors’ conception of the GND as a “last stimulus”. Their orientation is towards worker and indigenous-led disruption of renewable energy supply chains to minimise the adverse effects of the intensified extraction regime, which they term “internationalism from below” (Aronoff et al 2019).

Thus the various forms of the GND propose a rapid allocation of investment for green conversions to bring down greenhouse gas emissions in line with the global carbon budget. However, insofar as both Keynesian and ecosocialist programmes propose a form of “green growth,” they either disregard critical energy constraints or theorise them as invalid, such as through a faith in scientific-technical solutions (Schwartzman and Schwartzman 2018: 95). This understanding of development is misguided. Capitalist production, Marx reminds us, “moves in contradictions which are constantly overcome but just as constantly posited” (1973: 410). The contradiction of green growth thereby problematises the role that the GND plays in the strategic imaginary of the contemporary left, and poses a major dilemma for the approach of advanced economies to the green transition. The core theoretical contribution of this paper is to analyse this dilemma in relation to the GND proposed by the Labour Party.

2. Methodology and structure

The substantive analysis is based on an engagement with the energy transition in the UK from an historical materialist perspective. While this has been attempted before (Harriss-White and Harriss 2007), this paper approaches the subject from a perspective that foregrounds the contradictory character of the transition to renewable energy systems and the critical energy constraints to growth. While NGO research has begun to probe the idea of a post-extractive climate justice (Hitchcock Auciello 2019), this paper is particularly concerned with the question in regard to labour movement and ecosocialist strategies out of the crisis of sustainability. The contradictory character of capital's metabolic relation to nature indicates the limits to this understanding of a period of green growth as a necessary transition stage to a sustainable mode of production, as held by many ecosocialist authors (e.g. Schwartzman and Schwartzman 2018). This poses a challenge to the prevalent notion of ecosocialism associated with the GND in the Labour left and far beyond.

Since the GND is still a proposal, and Labour was defeated in the 2019 election, this is not an empirical study. It is rather an analysis of the Labour programme through its theoretical premises and the socioecological context to which it responds. Sections 3 and 4 draw heavily from empirical research on the changes in the UK's energy metabolism and ecological consequences of the renewable energy transition. The remainder is based on a review of materials from four sources: the burgeoning literature on GNDs; critical political economy, predominantly historical materialist accounts of energy and economic crisis, as well as theoretical contributions from the field of degrowth; analyses of changes to the UK energy sector; and Labour Party publications.

The research for this paper formed alongside the campaign for a GND in Labour in 2019. Following dissatisfactory encounters with the eminent GND proposals (Aronoff et al 2019; Pettifor 2019), Altvater and Mahnkopf's critique of 'The Capitalocene' (2019) provided an alternative perspective of the green transition in terms of technological capacities and geopolitical tensions. Complementary accounts of the ecological transition (Bernes 2019; Tseng 2020) indicated a need to engage with scholarship on the ecological impacts of renewable energies and extraction, which is analysed through Marx's concepts of metabolism and crisis (Marx 1973, 1981; Foster 2000) in section 4.1.

The study of the Labour Party's policy was carried out through a focus on their latest manifesto, *It's Time for Real Change* (Labour Party 2019a), this being the most detailed explanation of their GIR, alongside the 'Bringing Energy Home' report (2019c). In order to ascertain their programmatic and political logics, they were compared to the previous election manifesto, *For the Many, Not the Few* (Labour Party 2017a) and the report on *Alternative Models of Ownership* (Labour Party 2017b). The development of major changes in the period between these documents were assessed through the work of LGND as seen in its policy statements (LGND 2019a,b,c) as well as informed by my participation in its public events and selected relevant journalism (Hymer 2019; Saltmarsh 2019,2020; Buller 2020). While these documents explain the provenance of the GND in Labour, a more detailed picture of the content of the

proposal from grassroots party activists was gathered from the 2019 conference report (Labour Party 2019b). Finally, I also considered the ‘Thirty Recommendations’ of Bailey et al (2019), which was commissioned by Long-Bailey in the wake of the party conference that supported a GND, as well as a macroeconomic study of these recommendations (Nieto et al 2019).

The paper is structured as follows. Section 3 presents the recent policy direction of the Labour Party to 2019. Section 3.1 indicates the challenges facing efforts to green the UK economy through stylised facts regarding the metabolism of the UK economy: the decline of fossil fuels and rise of renewables in the last decade, and its 2050 Net Zero target. Section 3.2 provides an account of the political struggles and economic policies during the period of Corbyn’s leadership, within which LGND emerged. Section 3.3 presents the platform of the party at the election in December 2019.

Section 4 is the critique of the GIR. Section 4.1 outlines a Marxian theory of ecological exhaustion and crisis in relation to the expansion of renewable energy, stressing the limits to the valorisation of nature. This raises the dilemmas of an ecosocialist GND programme in the UK case in terms of energy and also spatially. Section 4.2 examines the limits to Labour and Bailey et al’s recommendations for reductions in energy use. The limitations of this approach to energy reductions represents the boundary of Labour’s GND. The favourable interpretation of the GND by the Labour left is clarified by an analysis of the way which social democracy and Labourism function in the frame of a national economic strategy. This is problematised in section 4.3 in relation to the global nature of the crisis. The symmetries of the role of the 2019 economic policies and the Alternative Economic Strategy (AES) are examined. It is argued that the GIR obscures the limits to the valorisation of nature and the need for a downscaling of swaths of industrial production and energy use, along with the antagonistic relationship between the producers and appropriators of surplus value. This problematises the claim that the strategic paradigms of Keynesianism and a socialist internationalist strategy are reconcilable or situated along the same direction of travel. Section 5 concludes.

3. Labour’s Green Industrial Revolution

The economic and environmental policies proposed by the Labour Party in 2019 were among the first attempts by a major political party to spell out GND policies in greater detail, and put them to test in a democratic election. This section outlines the energy transition in which they emerged (3.1) and their place within the social democratic and ecosocialist thinking in Labour (3.2). The GIR, a proposal for green infrastructural investment programme focused on and reconstruction of the welfare state, is presented in 3.3.

3.1 Energy transition in the UK

The decarbonisation of electricity in the past decade is in part the legacy of the previous Labour government, and a consequence of the intertwined processes of deindustrialisation and

financialisation. State policy on energy and climate change is ubiquitously defined in terms of emissions reductions, and usually through accounting for territorial emissions only, occluding a holistic notion of ecological sustainability and eco-efficiency including the use of biophysical resources. The direction of travel is towards climate change targets which, first established in 2008 by then Energy Secretary Ed Miliband, have since been strengthened to specify a goal of Net Zero GHG emissions by 2050. The UK's approach has been based on continuities of neoliberal policies and is guided by explicit aims to minimise the economic disruption of a transition (CCC 2019). The policies have aimed to facilitate renewable energy growth in ways compatible with competitive markets and private enterprise. Progress in the decarbonisation in electricity are attributable to government policies in this vein, complementing developments in the energy market and changing investment trends. Some finance was provided by the Green Investment Bank, which was established as a public entity by the Cameron government but sold off in 2017 (Kazagalis et al 2019: 23-24). The major relevant policies are the Renewables Obligation (2002) which set out measures for achieving the target of a 34% reduction of 1990 level carbon emissions by 2020 (Toke 2018); the 2008 Energy Act which strengthened longer term climate targets; the feed-in-tariffs scheme for small scale renewable generation (Foxon 2013: 15), and Contracts for Difference, a competition-driven allocation scheme, which resulted in falling costs for both wind and solar photovoltaics (Howard 2020; IPPR 2020: 47-48).

The UK economy has a declining energy return on investment (EROI). National level estimations by Brand-Correa and co-authors suggested that it had fallen from 12.7 in 1997 and a height of 13.8 in 2000 to 5.6 in 2012 (the latest year of their analysis), meaning that "9.8% of the UK's extracted/captured energy does not go into the economy or into society for productive or well-being purposes, but rather needs to be reinvested by the energy sectors to produce more energy". The decline in national-level EROI was found to be steady from 2003 onwards (Brand-Correa et al 2017: 10-11). Some of this deterioration in the efficiency of energy investments is found in the natural properties of oil, coal and gas, since new sources of fuel are harder to locate and extract cheaply (in energy as well as monetary terms) (Elkomy et al 2020: 50). However, low levels of EROI at a national level can be expected in the earlier stages of a post-carbon energy transition, and perhaps secularly. Elkomy and coauthors also posit the notion of a minimum EROI for the energetic reproduction of society in the range 4-15. This is "a major cause for concern" since, following Brand-Correa et al's estimation that UK EROI had declined to around 5.6 in 2012, there are shrinking portions of excess energy available for social expenditure beyond the reproduction of infrastructure (Elkomy et al 2020: 53).

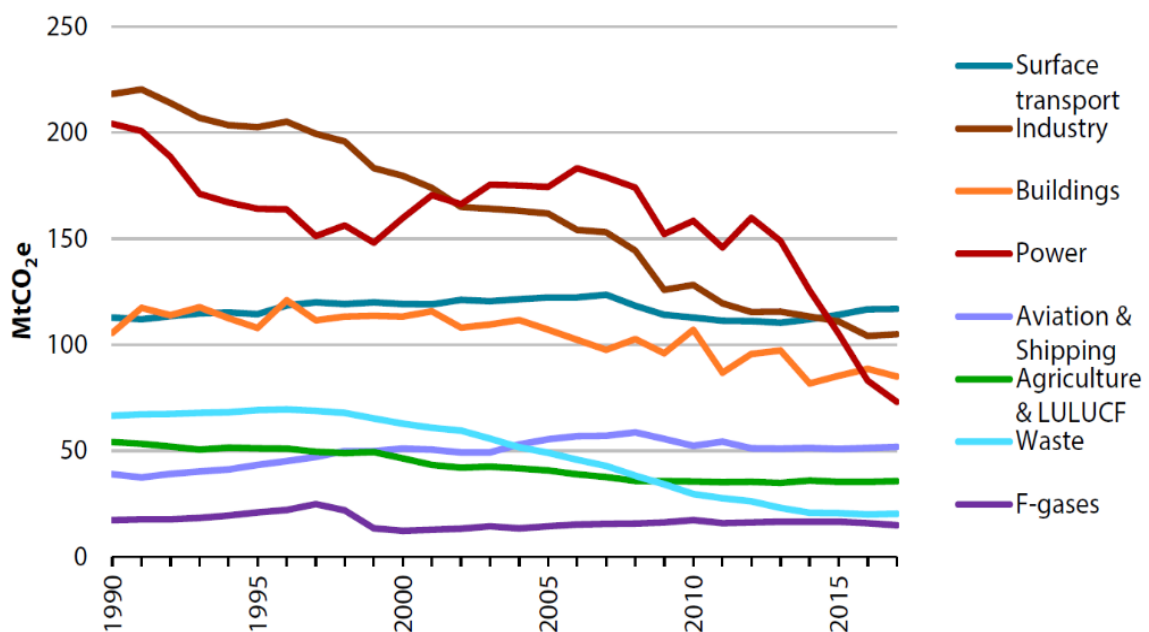
Using the first economy-wide model (MARCO-UK) that explicitly includes useful energy (energy services) and thermodynamic efficiency, gains in the latter were found to have contributed a quarter of the increase in GDP between 1971 and 2013 (Sakai et al 2018). Most of this growth is derived from endogenised technical change, since demand for primary and final energies is driven by that of energy services, "and hence stimulates capital investment and

generates growth.” When energy services were held constant in a counterfactual growth simulation, thermodynamic efficiency rose significantly. This suggests a ‘natural’ economy-wide thermodynamic efficiency gain, and “confirms the crucial role that energy augmenting technological progress plays as a driver of economic growth” (Sakai et al 2018: 8; also see Heun and Brockway 2019: 10).

With a focus on steel and cement as a proxy for economy-wide material use, Norman et al (2016) have observed the contradiction between economic expansion and materials use in an import-dependent advanced capitalist economy. While UK GDP grew at twice the rate of its mineral production in the years 1998-2011, with this occurring alongside observable gains in the productivity of labour in manufacturing, construction and mining, the decoupling of growth and resources is a fallacy visible only in national terms (Norman et al 2016: 14). These insights resonate strongly with studies of the limits to green growth decoupling (Hickel and Kallis 2020).

The power system now consumes at least half as much fossil fuel as it did in 2010. In the same period, the capacity of wind, solar, biomass and hydro grew six-fold, from 5.2GW in 2010 to 38.5GW in 2019 (Staffell and Wilson 2019: 4). Additionally there has been a steady fall in electricity demand, attributable to efficiencies, economic shifts and milder winters. Combined, these processes have contributed to a decrease of territorial GHGs by approximately 40% from 1990 to 2019, while the UK’s carbon intensity decreased on average 3.7% per year from 2000 – significantly faster than any other country within the G20 (IPPR 2020: 47). A sectoral representation of the emissions decline is shown in Figure 1.

Figure 1. Reduction in UK emissions by sector, 1990-2017

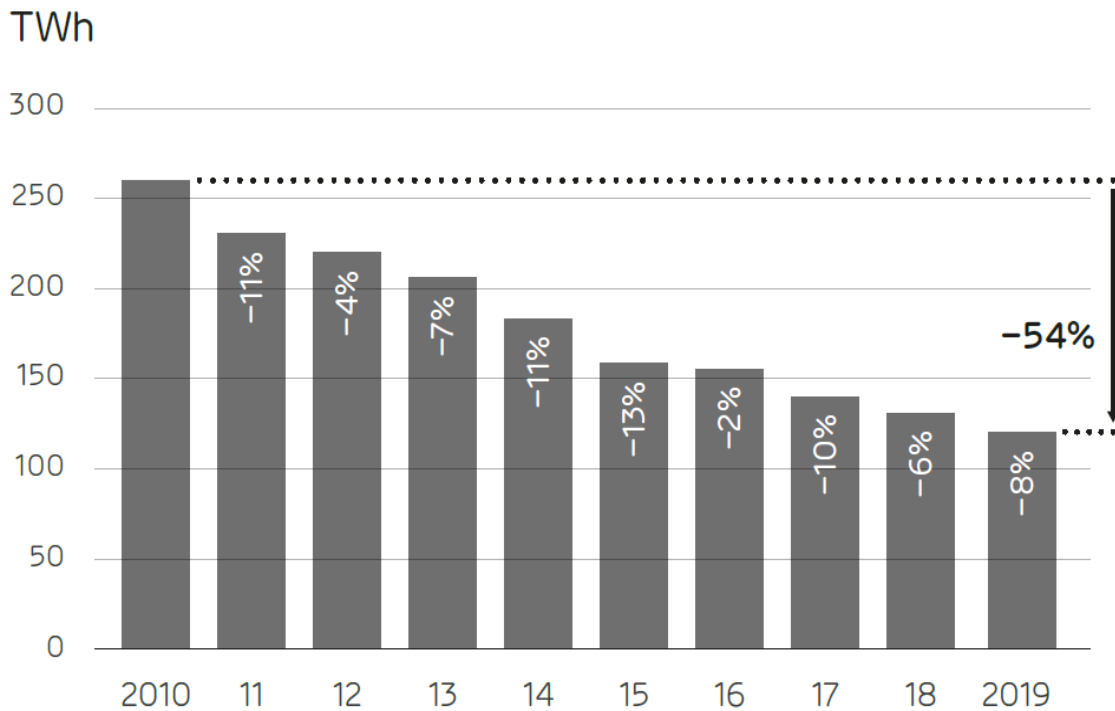


(from CCC 2019: 140)

The government has justified this initial focus of decarbonisation efforts on the electricity sector since it is the most cost-effective option relative to heat, transport and industry, the idea being that decarbonisation in power may then facilitate emissions reductions in heat and transport following their electrification (Staffell 2017: 463).

The power sector is undergoing an unprecedented transformation due to the phase-out of coal, new renewables, rising carbon prices and falling demand. The space which renewable energy has grown into is mostly that vacated by the decline of coal – which has undergone a significant decline following Thatcher’s defeat of the miners’ strike of 1984-85. As Tooze (2019) has noted, “Britain’s corporate energy sector was built on the ruins of the labour movement.” Over the same period, gas and oil production have seen smaller declines, as well as an overall fall in domestic energy demand. The decline of fossil fuel output of the last decade is displayed in Figure 2.

Figure 2. Declining electricity generation from fossil fuels

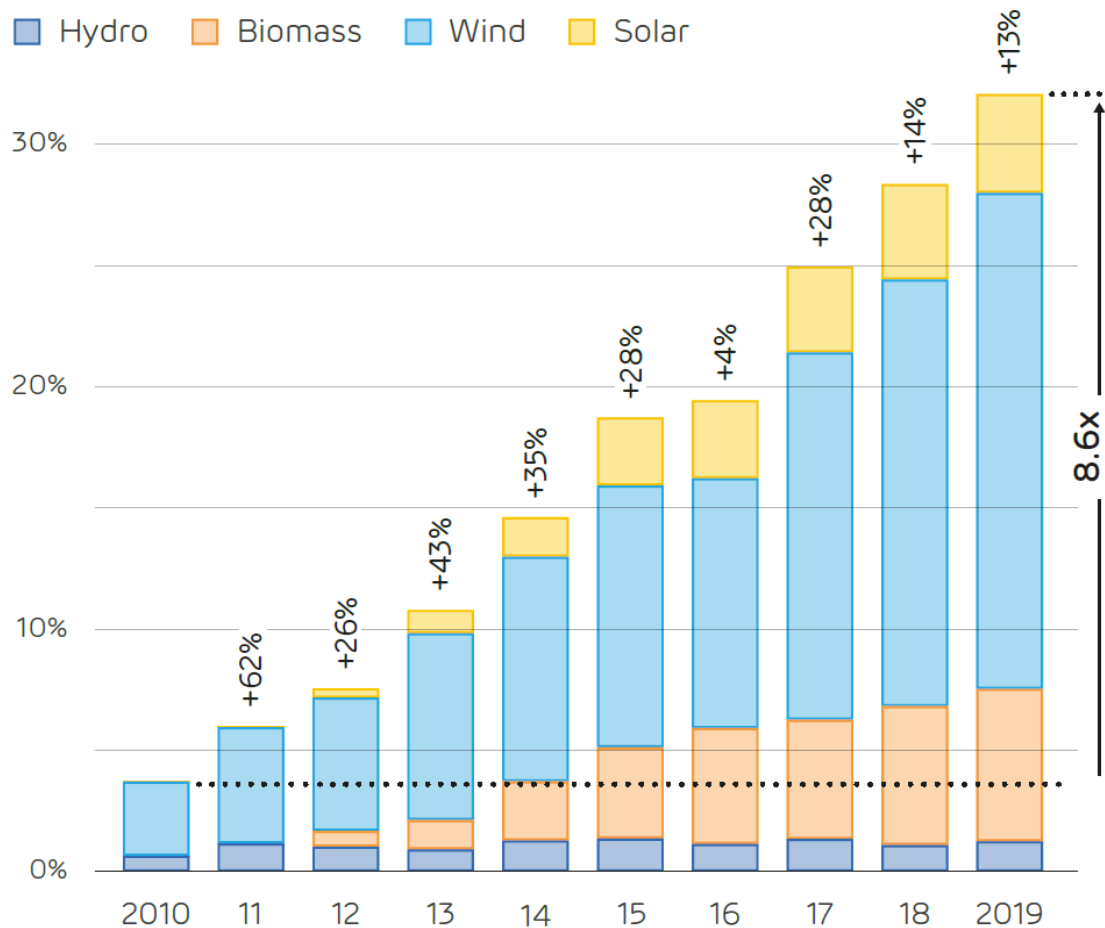


(Staffell and Wilson 2019: 4)

Energy input from generation in hydro, solar and wind rose from 0.7 MtOe in 2005, through 1.2 in 2010, to 4.7 in 2015 and 7.2 in 2019. By 2019, a 19.9% share of electricity generation came from wind alone, and 37% from renewables in total; in 2010, it stood at 7%.

The rise of renewable sources in the last decade is displayed in Figure 3. Future development is unclear and now dependent on when wind and solar become profitable on the open market, which is related to the continuing fall of technology costs and wholesale prices (Staffell and Wilson 2019).

Figure 3. Share of renewables, 2010-2019



(Staffell and Wilson 2019: 4)

At the time of writing, the Conservative government is under renewed pressure from the large energy monopolies to push forward with decarbonisation (Thomas 2020). This may be understood from two angles: clear regulation from the state allows the privatised National Grid and the transmission-supply companies to adapt and maintain their market position; as well as that achieving net zero in the power system sooner is considered “easier” in the orthodox policy and corporate strategies since demand is projected to be lower in the next decade than those that follow it (Richard Howard, quoted in Thomas 2020). This gives space for rebound growth following the decarbonisation phase.

3.2 Labour for a Green New Deal

Corbyn's leadership of the Labour Party (2015-19) appeared to break with the general approach underlying these trends. A veteran of the party's democratic socialist left, Corbyn was for example a signatory to the Trade Unions for Energy Democracy initiative. His election inspired tens of thousands of new memberships, predominantly young and sympathetic to his anti-imperialist, social justice and environmental politics. The remnants of the Labour left that existed prior to 2015 were largely isolated from the powerful bodies such as the Parliamentary Labour Party, the National Executive Committee and the permanent staff.

Inroads had been made by 2018, but mandatory re-selection of MPs, the key democratic reform and a long-term strategic goal of the left, was hamstrung by a trade union-brokered compromise. Indeed the affiliated unions perform a moderating role in general. While important leaders such as McCluskey (Unite the Union) were generally supportive of Corbyn, they typically operate unaccountably in the institutional bodies of the party, where they hold a large sway via guaranteed seats and delegates. In terms of industrial organisation, their general mindset has been not only of managed retreat. Rather, the capitulation of the public sector unions during the national pensions dispute in 2011, and a number of victories for the state on issues over which the unions barely showed an inclination to fight since then, including the legislation of further restrictions to their activity through the Trade Union Act (2016), are all expressions of defeatism. This is significant since it illustrates how Labour's turn towards an emboldened social democracy was not the result of a rise in class struggle from below. Union membership has continued its steady decline since the early 1980s. The year of Corbyn's election to the leadership was also that of the lowest rate of strikes since records began in 1893 (Tufekci 2020: 213). There have nonetheless been shoots of environmental trade unionism, based on workplace organisation as a site of expanding awareness of climate change and campaigns over environmental safety, emissions and energy efficiency (Hampton 2018). While the 2017 Trades Union Congress supported Labour's public energy and climate change strategy, the latter is more controversial in the GMB and the RMT unions, where there is a stronger representation of fossil fuel workers. As a whole, Corbyn's period of leadership was constrained by a weak basis in industrial organising and struggle, at the same time as being buoyed by a dynamic new membership with a palpable appetite for counterhegemonic left-wing policies.

The economic strategy of the Corbyn-led Labour Party was informed by that of Tony Benn, whose favouring of industrial democracy and the upholding of working class standards of living placed him in conflict with the limits of 'Old Labour' Keynesianism (Foote 1982). The key ideas of Bennite socialism are captured in the 1976 Alternative Economic Strategy (AES). While there are key difference from the 1970s period such as McDonnell's search for a "pro-growth" coalition between sections of capital and the trade unions which previously "appeared impossible" (Bassett 2019: 43-44), the AES is analysed in relation to Labour's GND in section 4.3.

Labour's economic policy was further informed by post-Keynesian approaches: from the 2017 election onwards its programme favoured large-scale infrastructural investments, to be coordinated through a new National Investment Bank and public regional banks (Labour Party 2017a) that were understood to contribute to a process of definancialisation (Lapavistas 2018). Sectoral collective bargaining was to be restored. Industries such as the railways, energy transmission/distribution and other utilities were to be taken back into public ownership, their nationalisation being precondition to establishing community-owned and ran services. Alternative models of ownership (Labour Party 2017b) could then be the building blocks of a relatively decentralised, participatory form of socialism (Robertson 2020). "Decommodification" therefore formed a central part of the economic strategy.

For advocates of "the democratic economy", the agenda did not focus on

regulatory fixes or 'after-the-fact' redistribution but on structural changes in the economy and the nature of ownership and control over productive wealth that go right to the heart of our current difficulties – and are capable of producing greatly improved distributional and social outcomes... Widely described as a (merely) social democratic programme, *For the Many Not the Few* [the 2017 election manifesto] in fact contains the seeds of a radical transformation beyond social democracy (Guinan and O'Neill 2018: 8-9).

This was echoed in the LGND campaign in their thinking that the generalisation of community ownership in renewable energy might extend towards "community-owned, non-profit making control over everyday production, consumption and services" (LGND 2019a: 6). Further radical policies could be seen at the peripheries of the Corbyn movement, such as the campaign for a Four Day Week, which combined demands for more autonomy and control of working time, linking these to a push for control of emissions and acknowledgement of ecological limits (Frey 2019).

The theory of the state informing Labour's political economy was ambiguous. On the one hand there is the tendency to view the state as a flexible but fundamentally neutral institution, with policy and its general orientation depending on who is in power (O'Kane 2020: 688-689). One aspect of the overall ambiguity can be identified in the programmatic coexistence of policies of "market socialism," e.g. firm-level reforms, with those of "participatory socialism" founded on government-level decommodification reforms and universal services (as differentiated in Robertson 2020). On the other hand, leaders of the Labour left appeared to appeal to a more critical conception of the state's class character. McDonnell (2018) has referred to the relationship of the working class to the state as "one of dominance... The state controls and dictates behaviour, determines the limits of a person's influence over decisions and can inflict sanctions". Yet this understanding, drawing from the idea of struggle *In And Against the State* (London-Edinburgh Weekend Return Group 1980), also effectively reverts to a social democratic conception of the capitalist state which asserts that "the economy" can be subject to effective democratic-popular management through redistributive policies and regulating industries (Clarke 1991: 60-62).

In this period, though Labour had strengthened its official policy on climate change, including a plan for incremental ownership of the energy system (Hall 2016), in practice the party continued to be divided on matters of environmental justice. In June 2018, 119 Labour MPs defied the leadership's call to vote against a third runway for Heathrow airport, citing the promise of the employment benefits of its expansion (Hymer 2019). This found support from Unite the Union, which represents some workers in aviation.

However new research on a GND for the UK appeared in early 2019, and the idea was quickly popularised among the party's new activist layer. For Lawrence, editor of Common Wealth's influential reports, the GND is "a deep and purposeful reorganisation of our economy so that it is democratic, sustainable, and equal by design... The purpose is not just to decarbonise today's economy but to build the democratic economy of tomorrow". Essential to this is a transformation of central banking and the financial sector, including "a new architecture of international finance that can fund a global just transition" (Lawrence 2019: 3-4). This 'Roadmap to a GND' is subtitled 'From extraction to stewardship,' explicitly marking out a change in resource governance as an objective of the GND through "new forms of green internationalism, supporting the pooling of resources and technologies to address climate change equitably" (Lawrence 2019: 7). Ultimately such a strategy relies on opportunities afforded by a green stimulus for transitions in energy and democratisation of the economy, leading "from extraction to stewardship". Nevertheless, the means to overcome the contradictions of green growth through, say, an ecologically balanced socialist economy, come *after* a period of intensified green infrastructural development and extraction.

According to one of the founders of LGND, "we have a plan to mitigate climate breakdown through the same interventions required to build a prosperous socialist society"; the solution to the crises of climate and inequality being through the expansion of public ownership across the economy (Saltmarsh 2020). LGND argued that a successful GND "requires new and alternative forms of public and community ownership which would prioritise shared, public wealth as a precondition for counteracting the ideologies of the 'free market' and private ownership" (LGND 2019a: 2). These policies concurred with the general Shadow Treasury outlook of this time in understanding public ownership as "dependent on a state investment bank, as...to provide sufficient high-quality, patient finance for productive investment in State Owned Enterprises" (LGND 2019a: 5). While this programme straddles both post-Keynesian and ecosocialist themes, the former is dominant through notion that changes in ownership towards a mixed economy can be sufficient to produce an ecologically sustainable economy. The ecosocialist interpretation of this relies on the latent power of structural reforms of the sort described in the *Alternative Models of Ownership* report, but which were lighter in the actual GIR platform of 2019 (see 3.3). Moreover this depends on the problematic idea that nationalisations, reforms to corporate ownership and renewed municipalism can bring about a change in the system of production in general. This point in particular reflects the weakness of the Labour left conception of the transition between the capture of state power (by which

is understood to mean a Labour government) and the development of a socialist economy, on which their claim to a policy of ecological stabilisation crucially rests.

LGND was successful in organising wide support through local Labour Parties and some affiliated unions at Labour Party Conference 2019. Despite opposition to concrete commitments from the GMB, the conference adopted a ‘Socialist Green New Deal’, moved by the Fire Brigades’ Union. Like the ecosocialist GNDs of Schwartzman and Schwartzman (2018) and Aronoff et al (2019) this called on the party, “in collaboration with the trade unions and the scientific community, [to] work towards a path to net zero carbon emissions by 2030, guaranteeing an increase in good unionised jobs in the UK, the cost of which would be borne by the wealthiest not the majority.” Key elements of this programme included the creation of an integrated and democratic system of publicly owned energy; public ownership of the energy monopolies; large-scale investment in renewables and low-carbon energy (Labour Party 2019b). Additionally, the party adopted policy to welcome climate refugees, and to “support developing countries’ climate transitions through free or cheap transfers of finance, technology and capacity.” Finally, this understanding of the GND incorporated some orientation to class struggle politics in its call for the repeal for all of the anti-trade union laws, as to “facilitate worker-led activism over social and political issues, including climate change” (Labour Party 2019b).

For Saltmarsh (2019), this represented Labour adopting the programme of a “socialist and internationalist transformation of the economy.” Yet the policies agreed at the Labour conference with an internationalist leaning focused on “financial and technology transfers” – undoubtedly useful mechanisms in aiming at a more equitable form in international co-operative development but better described, in contrast to Aronoff et al, as an internationalism from above. That is not to say the need for an alternative is absent from the LGND movement. The Wretched of the Earth collective (2019) have emphasised the need for climate reparations and observed that “a greener economy in Britain will achieve very little if the government continues to hinder vulnerable countries from doing the same through crippling debt, unfair trade deals, and the export of its own deathly extractive industries”. However, such a view was subdued in what of the GND was taken forward into the 2019 programme.

3.3 The 2019 programme

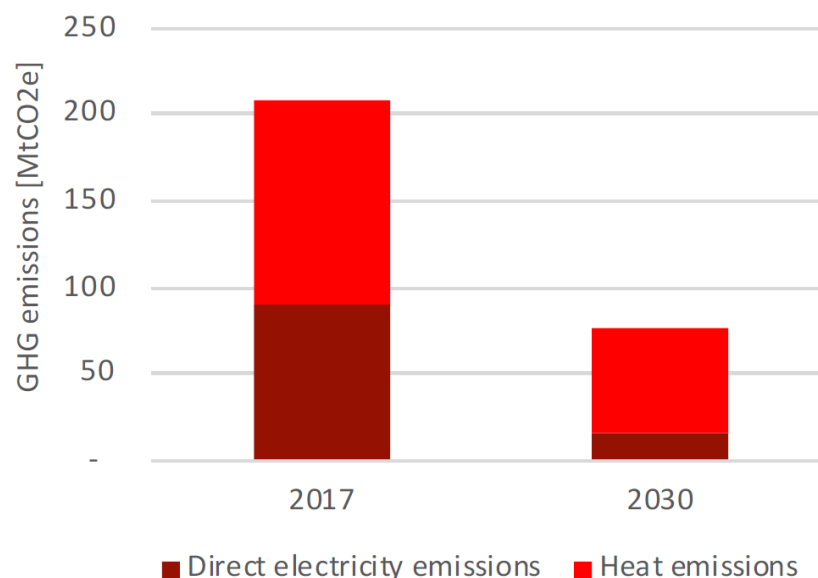
The leading policy of Labour’s 2019 election manifesto read:

Labour will kick-start a Green Industrial Revolution that will create one million jobs in the UK to transform our industry, energy, transport, agriculture and our buildings, while restoring nature. Our Green New Deal aims to achieve the substantial majority of our emissions reductions by 2030 in a way that is evidence-based, just and that delivers an economy that serves the interests of the many, not the few. Just as the original Industrial Revolution brought industry, jobs and pride to our towns, Labour’s world-leading Green Industrial Revolution will rebuild them, with more rewarding,

well-paid jobs, lower energy bills and whole new industries to revive parts of our country that have been neglected for too long. (Labour Party 2019a: 12)

This shows the coexistence of (post-)Keynesian policies and ecosocialist themes in Labour’s GND, tied together through an appeal to reindustrialisation. As Guinan and McKinley retrospectively put it, “the climate emergency requires drastic change across every sector, whether energy, transport, industry or agriculture. Delivering this drastic change makes an opportunity out of the necessity for a much more interventionist approach to the economy” (2020: 20). Investments of £250 billion over ten years would be channelled through a Green Transformation Fund towards upgrading and adapting buildings and the energy and transport systems (Labour Party 2019a: 3). These funds were aimed at energy efficiency improvements, demand-side energy reductions and a further shift to a 60% renewable energy mix to realise a majority of emissions reductions by 2030. Figure 7 displays the projected reduction in heat and electricity related emissions from Bailey et al (2019: 18).

Figure 4. Emissions reductions following Bailey et al’s 30 Recommendations



This is a significant improvement of the current trajectories (CCC 2019) but still too slow compared to what is required for the UK to keep to its contribution to the Paris agreement, let alone the necessary additional reductions from acknowledging historical emissions responsibilities (Jackson 2019).

These transformations of energy generation and use would be made through a mixture of public, private and community level investment (Labour 2019c: 6). The manifesto proposals aimed to motivate £774bn of private investment, including £113 billion in offshore and £24bn in onshore wind power, £18bn in solar power, £9bn in marine power, £4bn in CCS, £20bn for balancing the national grid, £129bn in heating systems and £457bn in the retrofitting of buildings. Public expenditure amounted to £190bn, consisting of £11.3bn in offshore and £2.4bn

in onshore wind power, £1.8bn in solar, £4.6bn in marine, £2bn in CCS, £20bn in grid balancing, £48bn in heat systems and £99.8bn in building retrofitting (Bailey et al 2019). The estimated energy savings coming from this are estimated to be 211 TWh via building fabric demand reduction, 91.5 TWh from heating system demand reduction and 32 TWh from electricity demand reduction, totalling as energy saving of 366.5 TWh.

Bailey et al have divided the Labour approach to the transition through four key goals: energy waste reduction, decarbonisation of heating, decarbonisation of electricity, and grid balancing (Bailey et al 2019: 12-15). This explains the central role for efficiencies, switches and retrofitting in energy demand reduction. Concretely these prioritised the conversion of buildings that use electric heating to renewable or low-carbon heating, retrofitting such as insulation and double glazing, installation of heat pumps, and the tripling of renewable energy capacities partly to meet this (Bailey et al 2019: 17). The energy use reductions are shown in Table 1.

While efficiencies and retrofitting produce reductions across all categories, a significant corollary of this is the effect of electrification in heating and industry. In heating 50% is anticipated to come from renewable and low carbon services, while 61% would be based on existing gas grid infrastructure (natural gas 277 TWh, biogas 28 TWh and hydrogen 34 TWh). This signals one facet of the UK’s “highly electric future” (Hammond 2013) whose ecological impact was considered by economists, engineers and physicists reporting to the Labour Party only in terms of emissions, following the CCC and the government (Bailey et al 2019) The major implications of this oversight and of electrification processes as a sustainable transition strategy are critically assessed in section 4 onwards.

Table 1. Projected demand (TWh) under Labour’s energy plan

Energy demand type	2018 level	2030 level (projected)
Domestic heat	338	307
Service heat	128	101
Industrial heat	163	142
Domestic electricity	114	91
Service electricity	93	87
Industrial electricity	89	86
Total	925	814

(Based on Bailey et al 2019: 17)

As part of an overall GND programme these measures can be considered the first of a cycle of stabilising investment packages which attempt to lay the foundations of a sustainable economy. This is the Keynesian conception of Labour's platform, and is also the most theoretically coherent. Nieto et al's MARCO-UK modelling shows the strong growth effects of upgrading and retrofitting: "The improvement of economy-wide energy efficiency also drives further expansion of the economy during the analysed period. The average annual GDP growth rate would be 4.5%-11.3% higher compared to the baseline scenarios" (Nieto 2019: 18).

Alternatively, Labour's programme is open to an ecosocialist perspective, in which it is not only a break with neoliberalism, but also a window to possibilities for a deeper transformation of capitalism. This is how it has been understood by many on the party's new left wing (Long-Bailey 2019). Such an interpretation makes the GND dependent on a wider array of factors, particularly the response of both capital and the workers' movement to a Labour government. Yet in this view, success in reducing carbon emissions is reliant on areas in which the Labour Party proposal was in practice politically, industrially and organisationally weak. Whether Labour's GND strategy really offered "a solution that matches the scale of the challenge, and is directed at the problem's source, rather than its symptoms" (Buller 2020: 27) is therefore deeply questionable. The 2019 platform does not begin to and indeed is not designed to address how a renewable energy transition will deepen another front of the ecological crisis. These contradictions are clarified in relation to the ecological effects of the green energy transition, problems of reducing energy use and the limits of a nationally determined strategy in the following section.

4. Energetic and spatial dilemmas of an ecosocialist GND

Labour's GND, the 'Green Industrial Revolution,' comprised a set of measures to reduce emissions and to introduce redistributive mechanisms into the British economy. It offered hope to socialists through the openings that might have grown out of greater economic democracy. This section analyses how, in the context of critical energy constraints to growth (4.1), it was a national economic strategy based on green growth, positing a deeper valorisation of nature. The GIR thus proposed a reconstitution rather than overcoming of the contradictions of green capital accumulation, in particular those emanating from production of renewable energy.

The limitations of Labour's 2019 platform illuminate the GND's possibilities and antagonisms to the construction of an ecological socialism. Buller (2020: 30) has suggested that there is a consistent core approach to policy of both the radical Keynesian and the ecosocialist GND, "according to which our urgent environmental and economic challenges are indivisible." Yet measures to begin addressing ecological breakdown and the emergent structural crisis of the world economy are beyond what is possible through Labour's GND proposals. This section locates this contradiction in the limits to the measures on energy use (4.2) and the national scope of the policy (4.3). The spatial and energetic dilemmas posed by a strategy in the "national interest" and on terms of green growth-led development suggest that the claim that

the paradigms of Keynesianism and an internationalist socialist economic policy are reconcilable, or that they lie along the same direction of travel, is at odds with the realisation of genuinely sustainable outcomes.

4.1 Critical energy constraints to growth

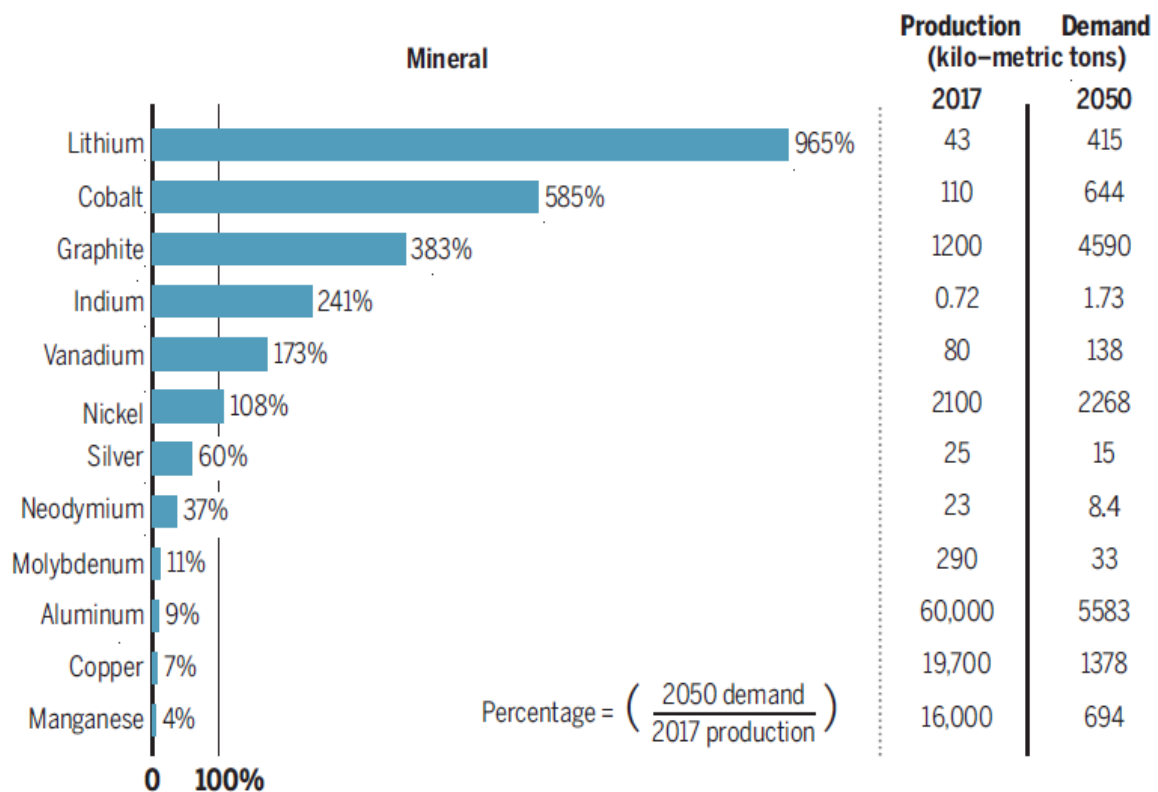
The production of renewable energy is a global, multi-scalar process. The earth's crust provides the raw materials essential to construct turbines, photovoltaics, means of energy transmission and batteries. It is a global process, since the necessary raw materials are only extracted where it is both profitable and acceptable to do so in terms of the exploitation of land and labour, whereas the technologies have so far tended to be installed in industrially advanced economies which are both geographically distant and positionally distinct within the web of global value production from the primary commodity exporting regions. The expansion of renewable energies which is beginning to gather pace (IEA 2019: 304) will increasingly exert immense pressure on the extractive moments of global production. While this dimension of the transition is gaining in attention (e.g. Dominish, Florin and Teske 2019), it has generally been victim to a systemically-anchored ignorance regarding the geological-material characteristics of minerals and the problem of physical scarcity – absolute scarcity in nature plus technological limits (Altvater and Mahnkopf 2019). Taking it seriously means acknowledging the connectedness of the production of green energy to the real subsumption of nature to capital (Arboleda 2020; Marx 1976: 1060ff).

Renewable energy technologies require an intense output of energy for their construction and maintenance. They are estimated to have higher material requirements per unit compared to conventional fossil generation, and issues abound in respect to their use of water and land. The real subsumption of extractive frontiers to meet the international demands of both the green energy boom, as well as their use in digitalisation extending from the military apparatus and the development of the labour process, means further rounds of primitive accumulation via dispossession and violent conflict prosecuted by states and corporations (Riofrancos 2020a: 4). The core of this problem can be located in the dependency of green growth on the primary commodity sector – specifically the supply of raw materials for renewable energy – leading to levels of ecological exhaustion that are constitutive of a new metabolic rift. The green growth resulting from low-carbon investment programmes is therefore associated with the intensification of extraction and supply crises containing a tendency to generalise into structural crisis of the world economy. This suggests the critical energy constraints to growth and one of the ecological contradictions of the 'green' transition. Under a GND, reliance on fossil fuels would make way for a dependency on the metals used in solar and wind power, the production of which is faced with major supply constraints. This also indicates an increasing tendency to mine low-grade ores, requiring greater expenditures of energy and water, and a resort to more toxic means of extraction and processing. This should be expected to intensify as the green infrastructure market balloons in coming decades (or

sooner, under some form of green stimulus). As a result of this dynamic, the “environmental impacts of mining copper, for example, could double or triple by 2020...[and] the global energy use of copper mining alone could rise to 2.4%, from 0.3% in 2016” (Tseng 2020).

The energy transition demands unprecedented quantities of copper and aluminium for electrification; lithium, cobalt, and nickel for batteries; cadmium, indium, gallium, selenium, silver, and tellurium for solar photovoltaics; and neodymium and dysprosium for permanent magnets in wind power and electric vehicles. Potential increases of materials demand are anticipated to be of the magnitude of 87,000% for electric vehicle batteries, 1000% for wind power, and 3000% for solar cells and photovoltaics between 2015 and 2060 (Sovacool et al 2020: 30-31). By other estimates, demand for germanium will double in the next decade, while that for dysprosium and tantalum will quadruple, demand for palladium will increase by a factor of five, scandium by nine, and cobalt by 24 (Pitron 2018). As well as huge increases in the pressure on copper production, accumulated demand to 2060 is greater than the estimated reserves of tellurium, indium, gallium, silver, lithium and tin (Capellán Pérez and de Castro Carranz 2019). Figure 5 displays a projection of demand for low-carbon technology only, based on World Bank (2018) data.

Figure 5. Growth in mineral needs for low-carbon energy technology



(from Sovacool et al 2020: 31)

The rate of recycling for these metals is low. Obstacles to the capacity for them to be recycled and used again are the logistical and physical challenges of collection, separation, and thermodynamic constraints; the economics of recycling; and problems related to growth (Tseng 2020). Whereas recycling is relatively simple and established for iron, steel, aluminium and copper goods, novel technologies using minute and dispersed quantities of metal disincentivises recycling due to negative economies of scale. There is a contradiction impeding the development of recycling rates manifest in low commodity prices since the end of the supercycle, which places the value of recovery close to or even above that of the metals themselves. This reinforces the favourable inclination of individual capitalists towards new extraction (Pitron 2018). The proliferation of alloy use complicates the possibility of reusability, such as with recovered lithium which is inadequately pure for incorporation in new batteries under current recycling and manufacturing practices. The more mixed metals are, the greater energy and process specialisation needed for separation, which minimises or even reverses the environmental benefits.

While there are numerous reasons to expect technological advances to facilitate more effective recycling (and which can be accelerated by state investment), they cannot suffice to meet total increases in demand (Haberl et al 2017: 9). Since the systemic logic of capital is that of expansive growth, there is a tendency towards increases in the mass of production enabled by such efficiencies (the rebound effect/Jevons paradox) (Parrique 2019: 105). According to Burkett and Foster, as “labour productivity grows, so grows the quantity of materials that capital must appropriate and process in order to achieve any given expansion of value” (2016: 158). Material throughput, and therefore environmental degradation, undergoes acceleration as the development of technologically advanced machinery and productive labour processes force the replacement and destruction of competing capitals. At the same time, the constant pressure to lower costs keeps elements of material throughput in check by penalising wastefulness (Burkett and Foster 2016: 159-160). Both forces act towards a speeding-up of turnover time, reinforcing greater matter-energy throughput. The means by which production develops as a whole (capital accumulation and growth), implies both necessarily rising material throughput and escalating rifts in the metabolic process. Capital’s intuitive tendency to overcome barriers to production is caught in a contradiction between the development of labour productivity and scalar expansion, resulting only in further pressures to exploit the natural world and human labour-power in search of ever cheaper raw and auxiliary materials, food and energies. This is a process which “deepens its own contradictions” (Saito 2018: 96).

In the long run, it seems likely that novel obstructions to profit realisation and crises of accumulation will be unleashed by the rising monetary costs of extraction. Barriers to a balanced accumulation of this sort are thus the result of the structure of the accumulation process itself (Harvey 2006: 128). Private ownership of the means of production, affecting also the exchange activities of governments and state corporations on world commodity markets (Arboleda 2020: 72), cyclically arrives at moments of ecological exhaustion (Moore 2015: 129).

These contradictory processes are foundational to the idea of green growth and a possible green-capitalist mode of development (Brand and Wissen 2018). Within this systemic logic, a shift towards renewable energy systems on the basis of an expansion of extraction and land and water use appears as the only means towards improving sustainability. The demands of renewable energy transition at the scale of the global economy require the scalar expansion and capitalisation of sites of extraction beyond their capacity now not only to be ecologically regenerative but also to deliver the required commodities in volumes enough to sustain growth, thereby establishing new, crisis-ridden path dependencies. An account of the production of green energy across its whole lifecycle therefore indicates investment and growth in the green economy will reconstitute the “irreparable rift in the interdependent processes of social metabolism” (Marx 1981: 949). The notion of a green capitalist development, or even a green growth with a socialist gloss, is therefore ecologically contradictory rather than sustainable. This is especially true of the idea that resource use can be absolutely decoupled from GDP growth (Hickel and Kallis 2020).

Consequently, a model of development in which renewable energy replicates the role played by fossil fuels in the twentieth century as the driver of industrial growth is not feasible. Whether considered in terms of resource supplies to construct a system of renewable energy to power a world economy expanding from its current size, or from the point of view of developing a system of productive relations based on interdependence with the non-human natural world, this presents the labour movement with a major dilemma. While the British economy is undergoing ‘green growth’ decarbonisation in energy, which would progress under a green stimulus programme, it is not a model that can nor should be replicated across the world economy. Beyond the conflict over acknowledging the nature of the situation, the dilemma lies in how to respond to the contradiction of a supposedly green economic development based on the presumption of the infinite valorisation of nature. The notion that this could provide the basis for an ecological socialism is contradictory.

The dilemma challenges the conceptions of the GIR going back to its somewhat more radical origins in LGND. The campaign rightly raises some of the issues surrounding the mineral components of renewable energy, reflected in their call for a GND which will “work with international partners to develop sustainable and secure renewable supply chains” (LGND 2019b: 5). This effort, however, is framed in terms of “ensuring developing countries get a fair share of the wealth from the minerals needed for decarbonisation such as cobalt and lithium, instead of the small fraction they currently receive, and that extraction does not violate human rights, exacerbate conflict or destroy local environments” (LGND 2019c: 4), reflecting a statist notion of international solidarity, and the error of many Keynesians to ask that ecologically unequal exchange of commodified labour be made “fair”.

4.2 Reduction of energy use

The focus of the recommendations for climate policy from Bailey et al, which was taken up by the Labour Party as part of its GIR proposal, is for energy waste reduction, decarbonisation of heating and electricity, and grid balancing (Bailey et al 2019: 12-15). Though the combined effect of these is crucial, Labour's proposition for energy demand reduction is perhaps the most significant element, indicating a potential compatibility with the principle that "to achieve a radical reduction in emissions we need a global economy that is considerably smaller in material terms" (Burton and Somerville 2018). This remains merely a potential, however, since Labour's reductions are conceived with the aim of decoupling GDP growth from energy use.

The reductions recommended by Bailey et al would be delivered by retrofitting, through a decrease in building fabric (heat loss) demand, and a reduction in electricity requirements. On top of that, the heating system also contributes to energy savings (Bailey et al 2019; Nieto et al 2019: 12). Nieto et al's projections suggest a decline in economy-wide final energy use and an overall effect of higher useful exergy per unit of final energy use: "increasing welfare with lower environmental impacts," as the authors put it. As a result of the programme, "energy carriers of the UK's economy decrease and, simultaneously, enable a better performance of the economy" (2019: 26). The decline in energy use is comprised of falls in domestic and industrial energy use, with a rebound effect of around 5% in other sectors (services, government, etc.). This effect could be underestimated since households' energy use is fixed at exogenous values, and the rebound effect is stronger in the scenario with dynamic energy prices (Nieto et al 2019: 24).

From the results of their post-Keynesian modelling scenarios, Nieto et al then suggest that rebound effects, and the obstacles presented to this transition plan by the limits to thermodynamic efficiency growth need special attention. Specifically this may require demand-side policies to increase thermodynamic efficiency at the same time as inoculating against rebound effects (Nieto et al 2019: 28-29). In addition to Labour's energy reduction policies, they recommend additional measures: "promoting car-sharing, telecommuting, etc.; demand management policies to reduce energy use requirements and avoiding rebound effects; funding energy bills to low-income households to avert energy poverty or creating and funding long-term jobs on top of those created by the infrastructures deployment, mostly in low-energy demand sectors" (2019: 31-32).

This indicates limitations to the energy reductions in buildings and industrial efficiencies of the GIR. The trajectory established by its proposals amounts to a quantitative "ramping up" of *the existing pathways*, as the CCC recommend (2019: 11), and Bailey et al (2019) modelled at the request of Rebecca Long-Bailey (in her former capacity as Shadow Secretary of State for Business). The difficulties of effecting the next phase of deeper transition due to infrastructural and spatial position of the labour process, embedding cultures of high consumption and mobility, reflects an environmental ambiguity of the GND and social democratic reforms (Bernes 2018: 357).

Schwartzman and Schwartzman's (2018) insistence on a strong role for technological solutions is relevant here since the programme of energy reductions and emissions (though not bold enough in its timescale) may be interpreted to 'buy time' in which technological innovations can develop (fuelled by increased R&D spending by the state). The issue with this is that it relies on technological gains that either may not happen, and may contribute to greater rebounds and new avenues of accumulation on the basis of the greater subsumption of nature to capital. This is an attractive option for political forces which wish to moderate the crisis; it is another method of deferring and displacing the crisis tendency. Yet to overcome rather than merely process the crisis tendency differently demands change at the level of a democratically managed degrowth of many branches of industrial production. This is "the uncomfortable solution," which the GIR approach to energy reduction neither takes steps towards, nor prepares organisational and political support for (Altvater and Mahnkopf 2019). Instead the basic frame of Bailey et al's report and, by extension, Labour's theoretical premises, occlude these qualitative dimensions of the transition, reductively posing them in terms of a linear and cumulative process of emissions reduction. This results from three sources.

Firstly, this conception of energy reduction is confined to an ecological post-Keynesian conception of political economy in which the decisive factors and inputs are GHG emissions, since climate change is acknowledged as an urgent issue, and thermodynamic efficiency (exergy), since this has a considerable determination of the growth of capital stock and is subject to endogenous change (Sakai et al 2018: 8). Energy reduction is a function of the thermodynamic efficiency (though subject to rebound growth effects), and a means to achieving the first. GDP growth is understood to contribute positively to this process.

Secondly, and following from the national accounting that is paradigmatic in Keynesian macroeconomics, is a fragmented conception of the role of emissions in global ecological processes. Since these are defined by the national economy, a picture of system-wide phenomena relating to consumption of the mass of capital and the production of primary commodities does not register. Reducing energy through retrofitting and industrial efficiencies functions soundly according to a territorial measurement but does not translate into consumption transformations at a systemic level. While a UK-centric policy perspective has an inherent inclination to understand this as "all that could be done", this necessarily overlooks the ecological contradiction of a green growth regime. Specifically this elides how the push towards renewable energy-powered capitalist stabilisation via green investment policies, even in one or limited to a few technologically advanced economies, will contribute to a global processes of the remaking and intensification of the extractive frontier, and in so doing, heighten the structural crisis of capital accumulation against the boundaries of the valorisation of nature.

Thirdly, there is the strategic aim of a national economic strategy, captured in the subtitle to Bailey et al's (2019) report: "The fastest path to decarbonising the UK economy and boosting the economy while we're at it". The following section examines this assumption as part of Labour's national economic strategy.

4.3 National economic strategy and global crisis

Nationally confined governance of ecological crisis tendencies represents a major problem for the GND. However, the framework of a national economic strategy is paramount importance to a “new environmental economics” based on Labourism. This section offers one possible historical explanation of the favourable interpretation of the GND among the Labour Left. The understanding of a GND as conducive to the possibilities of a transformation towards ecosocialism is related to the functioning of social democracy in the context of a national capitalist economy. What is at stake here is the contradiction between establishing a viable national politics of ecology and socialism, and the trappings of economic (and methodological) nationalism (Radice 2015: 44).

According to Panitch and Leys (2020), “perhaps the most problematic aspect of Labour’s industrial strategy [under Corbyn was] its silence on the question of how the promotion of internationally competitive export enterprises within the framework of global capitalism relates to the development of a transformational socialist strategy.” This criticism draws from the experience of the Alternative Economic Strategy proposed by Benn to the crisis-stricken Labour government in 1976 (Medhurst 2014). Its key measures were to reflate the economy to raise output and create employment; institute import and price controls; the nationalisation of key industries to develop encroaching public sector control of the private sector; public ownership of major financial institutions; withdrawal from the Common Market; and “compulsory planning agreements to force big firms, especially multinationals, to pursue different production, employment and investment policies” (Rowthorn 1981).

For the Conference of Socialist Economists AES Working Group, the programme represented “a transitional strategy, capable of mobilising working class struggle around immediate issues within an overall and coherent framework of advance towards socialism” (London CSE Group 1979). Tufekci (2020: 212) regards its measures as aimed at “increasing the integration of workers with the mechanisms and structures of economic power, wealth and decision-making in order to reduce industrial conflict and increase workers’ identification with the aims and interests of Britain’s economic growth and productivity”, a clear parallel with the New Deal and Keynesian management of capital and labour (Negri 1988: 34).

While this programme is far beyond what was proposed by the Labour leadership between 2015 and 2019, there are key points of symmetry. Put simply, the AES posited a strategy in which what was good for the British economy was considered the same as what would be in the interest of the working class. Tufekci and Coates have emphasised the technocratic and reformist character of this conception of socialist economic policy: “The idea, explicitly advanced on the Labour Left, was that the ‘sectional’ interests existing within the British economy—whether those of capital or labour, management or worker—had to be subordinated to the interests of the national economy as a whole, within which the capital-labour relation would continue to exist, albeit on ‘improved’ terms for the working class” (Tufekci 2020: 199). The AES was a plan “for a mixed economy, not a socialist one, whose performance [would]

depend on the creation of market and Social conditions favourable to private capital accumulation” (Coates 1981: 11).

The AES hinged on an assumption that national industry and the working class have common interests, in effect blurring the essential conflict between capital and labour (Kliman 2011: 201-202). This has practical implications that are manifest in LGND’s appeal to governments of developing economies (LGND 2019c). Internationalism becomes, at best, an internationalism from above – rather than, say, one with critical mining communities and labour movements. How this could lead to a break with extractive logic is ambiguous, since it is substantially aimed at “solidarity” with resource nationalist states (Riofrancos 2020b) whose economic strategy is based on primary commodity exports and have proven to be fiercely opposed to labour unrest in these industries (Arboleda 2020: 133-134).

Another consequence of this assumption is evident in Long-Bailey’s suggestion that “the case for a GND is compelling, regardless of how green your politics are”. Her extension of the argument to claim that it would be “reckless if we did not ensure that government investment on this scale was also a catalyst for broader economic transformation” (Long-Bailey 2020: 64-65) posits the desirability of a more fundamental transformation of the system of relations that has produced ecological breakdown. However, such changes are by implication rendered inessential to addressing climate change. This emanates from a problem of conception, in which the dream solution of green industrial policy in a national economic strategy displaces what is in fact an international antagonism between capital and labour, and capital and nature.

By incorporating the environment and climate targets into the virtuous cycle of employment and growth, Labour’s GIR makes a parallel claim to the AES. The measures of the 2019 programme are specifically geared towards managing the energy transition in a way which will raise GDP, and reduce energy through efficiencies and retrofitting only. In the context of an economy struggling to maintain competitiveness in a world market, a national-oriented strategy will not only struggle to make the profitability of industry commensurate with its promise of more control and better conditions for labour (Coates 1981: 14). Environmental goals, which are only meaningful at a general and cumulative level, are subject to that same mutual incompatibility.

While a national economic strategy of maximising GDP and employment while reducing energy use appears consistent in a post-Keynesian strategy (Nieto et al 2019), at a systemic level these are contradictory forces. It is unclear how the programme would possibly offer a break with productivist logic – especially if it is a strategy geared towards the restoration of competitiveness of British capital – precisely because this is an impossible choice. Since the world market that expresses the “radical interdependence of social and ecological existence” (Arboleda 2020), any programme aimed at reducing GHGs as well as acknowledging critical energy constraints would have to go beyond a nationally oriented strategy. While this is a constant feature of GND discourse (e.g. the global GND in Schwartzman and Schwartzman 2018; Lawrence 2019), acknowledging the necessary break from a national economic strategy based

on an imaginary common “national interest” is routinely overlooked in the *practice* of politics in national social democratic formations such as the left wing of Labour.

An internationalisation of the strategy offers ways to overcome this limitation. On the basis of evidence provided in this section, this ought to begin from the conception that the national economy, though the natural starting point for the concerns of a nationally-constituted state power, is not autonomous as a functional unit. As Radice claimed over three decades ago, “the national economy still exists, but in its present material form, economic organisation and social control (or if you prefer, the disposition of both forces and relations of production), there is little that can be done with it in isolation. The left has to recognise this, and modify the Alternative Economic Strategy accordingly” (2015: 41-42). In the contemporary, planetary interdependency is both “brutal reality and emancipatory possibility” (Riofrancos 2020b). To stand any chance of realising the latter, internationalisation is “an essential precondition of an effective strategy” (Radice 2015: 42).

5. Conclusions

This paper has considered a strategic dilemma inherent to the GND programme in its Keynesian and ecosocialist forms. The dilemma arises from the fact that the ecological crisis is not confined to climate change, but is produced and reproduced in a moving contradiction. While capital is based on the premise of an unlimited valorisation of nature, the intensification of extraction beyond the supply constraints of critical minerals results in ecological exhaustion, not only of ecosystems and human communities of mining regions, but also an exhaustion of the energetic surplus provisioned to capital, triggering further crises in production and realisation. Insights from studies of these phenomena in the sustainability science and political economy fields (Capellán Pérez et al 2015; Altvater and Mahnkopf 2019) suggest that it will transpire not only to be a momentary crisis of the reproduction of capital, but a crisis of the entire edifice of growth, high energy intensity and materials consumption common to all modern societies based on wage labour. In this study I have attempted to refine this insight and apply its logic to the agenda which is increasingly dominating egalitarian political and economic strategies in the era of climate change: the GND.

Green growth is one of the dominant consequences of GND economics. Even following the programme that is most congenial to degrowth policies (Aronoff et al 2019; Mastini, Hickel and Kallis 2021) the extractive and ecological costs of renewable energy production cannot be eradicated if rapid decarbonisation is to be achieved. GND measures propose a form of regulation of the expansive logic of capital, resulting in a novel configuration of its externalities and contradictory social metabolism. A tension and an ambiguity remains as to the mechanisms which are suggested to tame capital’s propensity for “maximum direct exploitation of all the raw and ancillary materials that enter the production process” (Marx 2015: 185), and the relationship between private capital accumulation and an expanded public sector. Drawing from this GND, though moderating its more radical premises, the 2019 Labour Party proposals pointed towards a hybrid mixed economy whose main features would have been an

investment and industrial policy orientation towards renewables, efficiencies and retrofitting; as well as a renewed public sector and reforms to corporate ownership. Five conclusions follow from the analysis of this programme.

Firstly, such a green investment programme would reduce emissions dramatically. Meanwhile it would have opened up a process involving major infrastructural transformations, potential space for diversified forms of ownership, and greater democracy including in the industrial arena. The GND, insofar as it has capacities for simultaneous decarbonisation and democratisation, remains a useful programmatic demand, although it can only be meaningful if part of a wider movement among labour organisations for ecology and democracy beyond capital. Its call for democratically controlled nationalisations are a necessary, if insufficient step. Again insofar as the programme allowed for greater room to the political economy of the working class in the potential form of universal basic services, restoration of union freedoms and collective bargaining, it was an advantageous development for the labour and climate movements. This is despite its ecological contradictions, since these measures allow for the potential space into which democratic ecological planning might grow and, in combination with coordinated decommodification of goods and services, ultimately replace the market with a sustainable system of production and exchange.

Secondly, for a period it therefore seemed as though there was a political force in British politics – and a beacon to the democratic socialist movement internationally – which did not shy away from “thinking big” on matters of infrastructural transformation. Despite many inevitable errors of conception, reconciliation, and of pragmatism, all of which contributed to the demise of the left leadership as a whole (Butler 2020), such openings remain a source of hope for the forging of an ecological politics based on pro-working class policies. Indeed, Labour’s 2019 programme was arguably barely considered in the democratic sense, its “core vision” having been “never properly set out by the national campaign,” in the 2019 election thereby squandering “the opportunity to make the GIR the unifying, positive centrepiece of Labour’s [programme]” (Guinan and McKinley 2020: 20-21; 22). Its new iteration, the Green Economic Recovery (Labour Party 2020), appears to have shed the more radical-democratic and redistributive content from the GIR platform. Nonetheless, following the logic underlying LGND, some of the same potentials exist, especially those emanating from the possibilities of jobs programmes and other measures that could transform the material position of sections of the working class. From this an alignment of basic needs with what is actually provisioned might emerge, providing one imaginable route to the foundational elements of a growth-critical ecosocialism. Such a development is of course dependent on factors of democratic participation and class organisation, and exists for now in an embryonic and much-weakened form. Indeed a striking difference between the new recovery measures compared to those under Corbyn/Long-Bailey is that the former follow more rigidly Miliband’s diagnosis of Labourism through reforms that “have never been conceived as part of a strategy for the creation of a fundamentally different kind of society, but rather as specific responses to immediate ills and needs” (1983: 291). That is not to say that this did not apply to the programme

examined in this paper, but rather to emphasise that the internal possibilities were of a different sort.

This highlights the third conclusion, which is that there were limits to what could be achieved beyond the initial programme – namely, to enact the greater part of emissions reductions by 2030 – without a clear break from its social democratic mode of politics. Its investment programme would have enabled greater accumulation, with an insufficient constraint on the ecological effects of green energy, batteries, growth of electrification and so on. These extended beyond the (national) territorial measurements on which its overall logic is based. The dilemma it poses is that within a national economic strategy which is theoretically consistent with the conceptual framework of Keynesian macroeconomics and the notion of decoupling energy use from material growth, the systemic effects are rendered invisible. The critical energy constraints to growth and the emerging structural crisis of capital (as elaborated in Altwater and Mahnkopf 2019) are only comprehensible, and only possibly apprehensible, from outside of this view. Subsequent steps towards an ecologically restorative organisation of the economy would necessitate deeper transformations of the labour process, finance, social reproduction, and the relation between state and industry. What was most ambiguous in the GIR was whether gradual reformism in regards to ownership could bring about a general ecological stabilisation via a transformation of production as a whole. Certainly the national economic strategy focus of the Labour left has functioned against the possibility of moving beyond the GIR platform. Such a focus – in which economic growth, a reduction of ecological impact, and the increasing power of the labour movement are posited to be simultaneously realisable – not only blurs the antagonistic relationship between those who appropriate surplus value and those who uniquely produce it, but is an impossible proposition at a systemic ecological level. Where Arboleda, in his analysis of primary commodity trade from the Chilean perspective, finds that “radical thought and action against *extractivism* should be redefined on the basis of *total struggle* against capital” (2020: 253), there is a parallel conclusion for strategy from the perspective of import-dependent advanced capitalist economies.

Fourth is the proposal for an “ecological working class orientation” (Neal 2020; cf Hampton and Randall 2011). The working class is uniquely positioned to intervene in the metabolic process, not only in that it runs and maintains production, but moreover in that it is able to practically undertake “a planned and life-guided recombination of environmental and economic reproduction” (Burkett 2006: 300). Tactically, there is a great reserve of unique and unused knowledge to be drawn from in the general intellect of the working class – the nascent strength of workers across all branches of industry to collectively plan how ecological impacts can be minimised while use-values are expanded. This has great historical precedents, including in the British labour movement (Cooley 2020: 103ff). Panitch and Gindin (2018) are by no means wrong to have suggested that what “socialist internationalism must mean today is an orientation to shifting the balances of forces so as to create more space for transformative forces in every country.” Yet the contradictions that confront the GND and efforts at ecological stabilisation policies, as this paper has shown, requires the “development as rapidly as

possible [of] an internationalism of labour to challenge the internationalism of capital” (Radice 2015: 44). After all, the left’s transformative projects have inescapably “planetary horizons” (Riofrancos 2020b). While the growing discussion of a Global GND and (e.g.) debt relief reflects this (most recently: Blakeley 2020: 68), the idea of a labour movement international as integral to an effective response is usually absent, or secondary. The framing of the dominant labour and left organisations and their modes of thought remain predominantly nationally-confined.

Fifth, and finally, acknowledging critical energy constraints to growth and the antagonistic relation between capital and labour at an international level means developing and adopting strategies accordingly. Ecological working class politics needs to find a way to come to terms with the limits to capitalist nature, and the major transformations of our mode of living implied by it. Spaces in which to democratically decide how to make large industrial transitions towards use-value production are urgently needed. Likewise policies emphasising decommodification and the expansion of the political economy of the working class (such as limiting labour time) offer potential ways to facilitate healthy lives without needing growth policies in order to do so (Mastini, Hickel and Kallis 2021). While the later years of the Corbyn period proved dynamic for the convergence of labour and climate politics – immeasurably spurred along by the youth climate strikes and Extinction Rebellion – the content of the programme needs to be radically re-imagined (Burton 2020); further discussion is needed about the nature of the ecological crisis and corresponding socialist policies. On matters relating to technology and energy, for example, the agenda in Labour was not just insufficient but also eco-modernist. The emergent crisis of mineral supply and of the provision of energetic surplus to capital directly contradicts the logic underpinning the orthodox vision of a “highly electric” and energy intensive future that is shared by many ecosocialists including the height of Labour’s climate policy. This paper has shown the need for alternatives to growth strategies, and has done so based on analyses of a relatively narrow selection of the contradictions embedded in the world economy. Going forward there needs to be greater engagement between growth-critical research in economics, the Marxian critique of political economy and the militant labour movement. I am convinced such an engagement can be fruitful.

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