

Wind parks in post-crisis Greece: Neoliberalisation vis-à-vis green grabbing

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Abstract

This article explores the growth of wind parks in post-crisis Greece in the convergence of the Greek economic crisis, the country's structural adjustment and global climate change. It illuminates an ongoing process of nature's neoliberalisation defined by specific measures and strategies. These have facilitated a wave of green grabbing (public and private land, financial and natural resources) in Greece by mostly transnational (energy) companies. Green grabbing is leading to unfavourable consequences for local shepherds and farmers, domestic and small business electricity consumers, conservation and local biodiversity, as well as to ecological distribution conflicts. Private wind parks in post-crisis Greece serve as a socioecological fix to the Greek economic crisis and climate change. The article finally argues that large private and public-private wind parks are far from innocent. Rather, hiding under green and economic growth/recovery credentials, they represent a vehicle for the reproduction and expansion of capitalism with important socioecological implications varying in each context necessitating urgent empirical exploration.

Keywords

Neoliberalism, wind parks, green economy, structural adjustment, green grabbing

Introduction

Neoliberalism's penetration in global environmental governance (Büscher et al., 2012, 2014; Castree, 2010a, 2010b; Heynen et al., 2007; McCarthy and Prudham, 2004) has culminated with the latest attempts to 'green' capitalism under the so-called transition to 'the green economy'. Several old and new market-based policies and proposals for environmental conservation and management have proliferated across the world under this transition for allegedly responding to climate, ecological and economic crises. Included in these are renewable energy resources (RES) projects and particularly wind parks (Commission of European Communities (CEC), 2008; United Nations Conference on Sustainable Development (UNCSD), 2012; United Nations Environment Program (UNEP), 2009,

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2011). Since 2008 the global installed wind capacity¹ has quadrupled (REN21, 2018). Modest projections indicate a significant proliferation of wind parks by 2030, particularly since a substantial increase of the renewable energy share in the global energy mix was integrated in the 2030 Agenda for Sustainable Development (United Nations (UN), 2015).

Political ecology scholarship and the literature on the intersection of capitalism, neoliberalism and nature emphasise that green economy policies are driving substantial transformations in the access to global land and environmental resources, entailing various (new) appropriations, dispossessions and environmental degradations (e.g. Bumpus and Liverman, 2011; Büscher et al., 2014; Cavanagh and Benjaminsen, 2017; Corson et al., 2013; Fairhead et al., 2012; Fletcher, 2012; Sullivan, 2013). While political ecology work on wind parks is increasing (e.g. Devine-Wright, 2005; Dunlap, 2017, 2018; McCarthy, 2015; Oceransky, 2010; Pasqualetti, 2011; Zografos and Martínez-Alier, 2009), wind parks are empirically under-examined in the strand of critical literature on the neoliberalisation of nature (conservation). This literature mainly focuses on protected areas, Payments for Ecosystem Services (PES), Reducing Emissions from Deforestation and Forest Degradation (REDD), biodiversity offsets, ecotourism, carbon markets/offsets and biofuels (for exceptions see e.g. Dunlap (2017, 2018)). ‘Green grabbing’ – the appropriation of land and resources based on a green rhetoric – is a key research theme of this afore-mentioned literature, as it is intimately tied to the neoliberalisation of nature (conservation). However, wind parks are also empirically under-examined in relation to green grabbing.

This article examines wind energy development and associated green grabbing in post-crisis Greece (i.e. after the crisis emerged) in the intersection of two crises (economic crisis, climate change) and neoliberal structural adjustment. Specifically, it explores the particular processes, mechanisms and outcomes of green grabbing through wind parks vis-à-vis (wider) phenomena and patterns concerning the neoliberalisation of environmental governance and capitalism’s operation. It seeks to identify the key reasons underlying the proliferation of wind parks in the country, key socioecological outcomes and the actual function of wind parks. The article demonstrates that wind park growth in post-crisis Greece has been facilitating neoliberalism’s further penetration in the energy sector, reflecting a particular ongoing process of nature’s neoliberalisation. Neoliberalisation has instigated green grabbing (land, financial and other resources) with adverse implications on local stock-breeders and farmers, domestic and small business electricity consumers, conservation and local biodiversity. These cannot be considered as negligible even under the face of accelerating climate change and its consequences. Green grabbing has also led to capital accumulation by mostly large transnational (energy) companies, which represents the key political purpose behind the wind park expansion in Greece. The article argues that neoliberalisation and green grabbing are occurring for providing a socioecological fix to these crises, with wind parks serving as such a fix. Finally, the article claims that, despite hiding under green and economic growth credentials, wind parks serve as a vehicle for the reproduction and expansion of capitalism, with important socioecological implications varying in each context necessitating urgent critical exploration. In this article, neoliberalism signifies a political project and rationale centred on market-mechanism reflecting a heightened form of capitalism. This involves measures and proposals for ‘rolling back’ the state apparatus, such as through public sector privatisation and deregulation, while simultaneously for ‘rolling out’ new governance modes and state forms through reregulation, to support the operation of old and build new markets (Peck and Tickell, 2002). Neoliberalism is ‘accumulation by dispossession’ (Harvey, 2005), accumulation by some and dispossession for others. Neoliberalism is comprised of variant, interconnected neoliberalisations organised at different scales (Brenner and Theodore, 2002). Neoliberalisations of nature (conservation)

amount to ‘multiscalar, geographically uneven... ongoing processes of proposing, revising, testing, applying, and further altering neoliberal ideas and policies’ in the environmental governance realm (Castree, 2010a: 1730; 2010b: 12).

In the next section, I present the methods used. Then, I discuss land/green grabbing and findings from literature on wind parks. Afterwards, I briefly present the history of wind parks in Greece before the economic crisis and then explore their growth after it emerged. I illuminate the key coordinates of a specific ongoing process of nature’s neoliberalisation concerning wind parks and of associated green grabbing: processes, mechanisms and outcomes. Finally, I discuss the case’s findings regarding green/land grabs, wind parks and reach the argument on the socioecological fix. I provide the conclusions and suggestions for further research.

Methods

The analysis is based on 21 in-depth semi-structured interviews and 2 open discussions with key actors from the Greek state, large Greek Environmental Non-Governmental Organisations (ENGOS), transnational RES companies operating in Greece, a Greek RES market body, the Greek political party SYRIZA and a Cretan social movement opposing RES (see Supplemental Appendix 1). Fieldwork in Athens and Crete was conducted between 2012 and 2015. Further, various primary and secondary sources were examined, such as Laws, state reports and statistical databases. The analysis concerns a period of considerable socioeconomic and political instability in Greece characterised by significant political changes (Table 1).

Table 1. Key political developments in post-crisis Greece.

Date	Developments
2009	Prime Minister of New Democracy government declares early elections referring to the need for economic measures to fight the economic crisis.
2009	A PASOK government is formed through elections.
2010	Prime Minister of PASOK government, George Papandreou, announces an international financial support mechanism developed by the European Union (EU), the European Central Bank (ECB) and the International Monetary Fund (IMF) (<i>aka</i> as troika).
2010	The Memoranda of Economic, Financial and Specific Policy Conditionality are signed.
2011	Prime Minister resigns and a transitional coalition government of PASOK, New Democracy and Popular Orthodoxy Rally is formed without elections, in an unprecedented partnership between the long adversaries PASOK and New Democracy.
2012	A second structural adjustment program and new Memoranda are developed between troika and the coalition government (except Popular Orthodoxy Rally) and enter into force.
2012	Another transitional government is formed and new elections are held. New Democracy, PASOK and the Democratic Left form a coalition government. The two-party system (i.e. PASOK and New Democracy) which had dominated the Greek political landscape since 1974 officially collapses: the coalition of the Radical Left (<i>aka</i> SYRIZA) becomes the loyal opposition.
2015	New elections are held and SYRIZA forms a coalition government with Independent Greeks, in a historic change whereby a government with ‘a leftist orientation’ is established for the first time.
2015	A third structural adjustment program is formed and new Memoranda are signed. The IMF only participates in drafting the Memoranda.
2015	The government resigns as some SYRIZA Members of Parliament leave from it, new elections are held and SYRIZA forms a coalition government with Independent Greeks.

Land/green grabbing and wind parks

Land grabbing has been widely explored in academic literature, with scholars using various definitions (see Holmes (2014)). Contemporary land grabbing is understood here as: ‘the capturing of control of relatively vast tracts of land and natural resources’ that involve ‘large-scale capital...that often shifts resource use to that of extraction as capital’s response to food and energy convergence and financial crises, climate change mitigation imperatives and demands for resources from newer hubs of global capital’ (Borras et al., 2012: 405). States maintain a key, albeit complicated role in land grabbing. They act as active facilitators of land grabbing in alliance with or in support of domestic and foreign capital – often calculating and negotiating the costs and benefits – in a number of ways. These include: justifying land-based investments; identifying, (re)classifying and quantifying land for investments; selling off or leasing for extended periods of time state-owned land; acting as brokers by grabbing/expropriating common or private land and furnishing this to capital; and regulations for attracting investments (e.g. tax breaks and subsidies) and market viability (Borras et al., 2012, 2013; Cotula, 2012; Levien, 2013; Margulis et al., 2013; Van der Ploeg et al., 2015; Wolford et al., 2013). Meanwhile, states attempt to maintain (minimum) political legitimacy and assert some national sovereignty by imposing prohibitions, controls and breaks through regulations (Borras et al., 2012; Wolford et al., 2013). These can involve active state involvement and simultaneously ‘roll-back’ of state intervention. The transfer of land from state or common/collective to capital control is observed for example in the sale of state-owned (but with collective entitlements in many cases) forest and farm land to mining companies (Seagle, 2012). Making land investable in such and other cases involves portraying, defining, (re)classifying and quantifying land as ‘waste’: marginal, underutilised and vacant land full of potential which can be made highly productive with the right investment (Borras et al., 2013; Ferguson, 2014; Gidwani, 2013; Li, 2014; Yenneti et al., 2016; Wolford et al., 2013). State land (re)mapping and registration is a key mechanism for this (Borras et al., 2012; Grandia, 2013; McCarthy and Thatcher, 2017). McCarthy and Thatcher (2017) discuss how mapping serves to revamp entire territories for their (RES) investment potential rendering land as ‘waste’ and producing it as an investable resource, while devaluing existing land uses and claims.

Recently, a strand of literature in the wider land grabbing one has appeared in response to the global land rush connected with environmental projects, centering on ‘green grabbing’. Green grabbing reflects the transfer of ownership, use rights and control over land and resources to powerful actors by various means legitimised by green credentials (Fairhead et al., 2012). It speaks to specific localised instances of land and resources grabbing connected to the particular context and history and to a global emerging phenomenon and process of nature’s appropriation (Corson et al., 2013; Fairhead et al., 2012). It also includes appropriations of financial resources under virtual and actual land grabs (McCarthy et al., 2012; Siamanta, 2017). Green grabbing involves new forms of valuing and commodifying ecosystems, new markets and novel alliances of actors (Fairhead et al., 2012). Processes of accumulation by dispossession, such as the redistribution of state resources and the manipulation of crises, are foundational in facilitating green grabs and the dispossessions they involve. The privatisation of state or communal lands and resources is a key aspect of green grabbing (Fairhead et al., 2012). However, green grabs are often based on the marketisation and transfer of rights to benefit from resources in lands and not on actually transferring land ownership and titles (e.g. Benjaminsen and Bryceson, 2012; Holmes, 2014; Ojeda, 2012). This can involve, for example, exclusive exploitation licenses and long-term leases. Green grabbing is thus also about who controls the land and benefits from its resources (Holmes, 2014). In this vein, Dunlap (2018) understands green grabbing

as: land and resources grabbing for capturing control in the name of an environmental ethic, involving diverse deceptive or coercive tactics and/or green militarisation and violence, and reigniting old and triggering new conflicts. Dunlap (2018: 649) sees the ‘green’ of green grabs ‘as a larger pacification device to continue land acquisition and industrial development’ in the face of ecological crisis.

Wind parks have not received much attention in the green grabbing literature. Yet, the growing critical literature on private and private–public wind parks demonstrates that they are accompanied – in variegated contexts – by unfavourable dynamics and impacts. These include: the exclusion of local people from decision-making processes and top-down approaches; political corruption; green militarisation and coerced and/or top-down land grabbing; adverse impacts on livelihoods, culture and ecosystems; and (violent) ecological distribution conflicts arising from unequal power dynamics and the unequal distribution of benefits and costs (e.g. Avila, 2017; Brannstrom et al., 2017; Devine-Wright, 2005; Dunlap, 2017, 2018; Howe et al., 2015; Lawrence, 2014; Martínez-Alier, 2002; Oceransky, 2010; Pasqualetti, 2000, 2011; Toke, 2002; Wolsink, 2000, 2007; Zografos and Martínez-Alier, 2009). For example, Brannstrom et al (2017) examine wind parks in Ceará state, Brazil and find that they have caused substantial environmental impacts (e.g. on sand dunes, mangroves) and major changes in the livelihoods of coastal residents, whereby access to resources previously used for securing livelihoods/subsistent activities was denied due to land ownership change and privatisation of common resources. Specifically regarding green grabbing, Hadjimihalis (2014a) briefly discusses the extent and cases of land grabbing of state-owned forest land for wind parks in post-crisis Greece. He refers to a creative destruction of landscapes and to wind parks as state-subsidised. Dunlap (2017, 2018) deals in detail with green grabbing through wind parks. Dunlap (2017) examines wind parks in La Ventosa, Mexico, and finds that despite benefits for some land owners and token civil works projects for the town, land and resources grabbing is intensifying pre-existing trends towards inequality and poverty through amongst others huge increases in land, rent, food and electricity prices and outmigration. Dunlap (2018) explores the grabbing of communal land and the disciplining of local resistance for the development of a wind park in Juchitan, Mexico, finding social divisions, violent conflict and cultural change. He illuminates the complexities surrounding green land deals, such as complicated land relations and rights, as well as ‘hard’ and ‘soft’ counterinsurgency techniques employed.

Wind parks in Greece

Wind parks before the economic crisis

In line with the formulation of coherent environmental policy and environment-friendly legislation in the country since the mid-1980s, Greece began to develop an institutional framework for green energy production from 1985 onwards. Various Laws and state-provided economic motives (Table 2) led to a noticeable steady growth of private and public wind parks since 1998 (Hellenic Republic-YPEKA (HR-YPEKA), 2009). Ensuing Laws instituted new beneficial developments for the penetration of private wind parks (Table 2). These developments coincided with the ‘modernisation program’ of the Simitis Prime Ministry (1996–2004) which involved amongst others privatisations of state-owned enterprises (including part of the Public Power Company (PPC)) (Table 2) and new major infrastructure projects. In 2006, Law 3468/2006 integrated RES Council Directives years later and instituted further favourable regulations for RES growth (Table 2). In 2008, the National Special Spatial RES Plan was approved (Joint Ministerial Decision (JMD) 49828/2008) (Table 2). Despite these developments, wind park penetration remained moderate up

Table 2. Key developments concerning wind parks in Greece before the economic crisis.

Date	Developments
1983	1st wind park created by the Public Power Company (PPC).
1985	1st Law instituting the production of energy through RES (Law 1559/1985).
1994	Law 2244/1994 increases RES contribution in Greece's energy balance, institutes stable prices and 10 year contracts with PPC for independent producers to sell energy derived from RES and defines the institutional and legislative framework for renewable energy development.
1997, 1998	The Operational Energy Program (OEP) and Developmental Law 2601/1998 provide state subsidies for RES works.
1998	1. PPC Renewables is established. 2. Greek corporation ROKAS creates first private wind park. 3. First private wind parks are created from 1998 onwards. 4. Noticeable steady growth of wind parks from 1998 onwards.
1999	Integration of Council Directive 96/92/EC (3 years later) for liberalising the domestic electricity market (Law 2773/1999).
2000–2006	State subsidies for wind parks are available through the EU's 6th Environmental Action Program (EAP).
2001	1. Law 2941/2001 institutes beneficial regulations: (i) simplification of the licensing process for RES works, (ii) characterisation of RES as 'public utility works', (iii) compulsory expropriation of forests and forest expanses for installing RES, and (iv) installation of RES projects in protected NATURA 2000 areas. It does not ratify Directive 2001/77/EC on RES. 2. PPC Renewables begins first joint ventures with private companies for RES projects.
2001–2003	Part of the PPC is privatised (49% of its share capital) under the energy liberalisation reforms in the EU.
2002	Law 3017/2002 ratifies the Kyoto Protocol and Greece adopts a National Programme for achieving the Kyoto commitment.
2004	Development Law 3299/2004 provides state subsidies for wind parks.
2005	Transnational EDF creates a subsidiary and enters the Greek green energy market.
2006	Law 3468/2006 integrates Council Directives 2001/77/EC (5 years later) and 2004/8/EC (2 years later) on RES and electricity co-generation, respectively. It sets a national constraining target for RES contribution in gross domestic consumption (20.1% until 2010 and 29% until 2020), characterises RES as works of public interest, simplifies and accelerates the relevant licensing processes and provides incentive measures, such as an ameliorated FIT system.
2008	1. Greece suspended from and reinstated in the Emissions Trading System of the Kyoto Protocol. 2. The National Special Spatial RES Plan is approved 7 years after it was proposed. Suitable areas for RES works across the country, areas of wind priority and the carrying capacity of areas are identified. The installation of RES projects inside NATURA 2000 areas is permitted (excluding their 'core' and Sites of Community Importance) given an Environmental Assessment Approval (EAA). An Ornithological Study is further needed for wind parks within the Special Protection Areas of the Birds Council Directive 79/409/EEC of the NATURA 2000 network.

to 2009: 1022 MW (HR-YPEKA, 2009). Greece ranked fifth in global lignite coal production and second in the EU after Germany (EC, 2008). Table 2 provides a synopsis of key wind park developments before the economic crisis.

Greek RES Laws and regulations, especially between 1985 and 1999, followed European green energy developments, with the most determinant factor behind the Greek environmental policy of this period being the EEC/EU (i.e. Greece's 'Europeanisation') (e.g. Pridham et al., 1995; Weale et al., 2000). However, the state (PASOK or New

Democracy governments) delayed in cases by years the integration and ratification of European Directives, instituting at the same time its own green energy Laws (e.g. Table 2). This resonates with the adoption of European environmental regulation in Greece, which has been associated with a negative or deficient environmental westernisation (e.g. Kazakos, 1999).² This ‘problem’, at least before 2000, was primarily an issue of non-integration. The state (PASOK or New Democracy governments) sabotaged and bypassed the adoption and abidance of environmental legislation due to developmental and strong private interests that existed in Greece and the clientelistic relations it maintained with them (Botetzagias, 2001a, 2001b).

Wind parks in post-crisis Greece

In 2009 and in parallel with the global financial crisis, Greece announced a public debt, revised in 2010 at 126.8% of the national gross domestic product (GDP) (Hellenic Statistical Authority (HSA), 2010). ‘Shock’ tactics employed emphasised impending default, severe economic implications and ‘collapse and catastrophe’ if not for (structural) measures and financial bailout and were popularised by the Greek media (e.g. Greek Explanatory Statement (GES), 2010: 1; Papandreou, 2009; ToVima, 2010). In 2010, Greece received a bailout package from troika under a structural adjustment program and signed Memoranda of Understanding (MoUs) aimed at neoliberal restructuring for economic growth. The MoUs involved numerous reforms, including measures for reorienting the economy towards a more investment growth model (Greece MoU SEPC, 2010).

Meanwhile, a particular organised green energy discourse emerged in Greece since early 2009 in the convergence of the (Greek) economic crisis and global climate change (Siamanta, 2017). Not only was the Greek economic crisis promoted as a looming disaster with detrimental consequences for Greek citizens and beyond, but climate change too. It was propagated as the ‘biggest modern threat’ (Papandreou, 2009: online) and as ‘the biggest environmental, economic and social crisis in the history of mankind’ (Greenpeace, 2010a: online) with catastrophic implications for ecosystems and people in Greece and globally (e.g. WWF, 2009a, 2012). A number of actors supporting the transition ‘to the green economy’, namely the state (under the different governments), large ENGOs, RES market bodies and the mainstream media, promoted investments in RES (wind parks and photovoltaics) as one way to avert these crises and their consequences through capital inflows, green jobs, individual profits for citizens and reducing lignite coal usage (Siamanta, 2017). For example, RES figured as ‘the magic wand’ (Greenpeace, 2009: 5), ‘an antidote to the economic crisis’ (WWF, 2009b: online), a way ‘to bring ‘green jobs’ with decent salaries... investments and exports’ (Papandreou, 2009: online) and as ‘an opportunity to bring the country out of the recession’ (Papandreou, 2010a: online). However, according to this discourse, RES investments were insufficient. Citizens had to become ‘responsible’ and/or ‘energy revolutionaries’, not caring about their self-interest but about the common good, and ‘do their bit’ in saving the economy and the climate (Siamanta, 2017). The way they could do this was by ‘common efforts’ (Papandreou, 2010b: online), protesting and demanding Greece’s turn to RES (Greenpeace, 2010b, 2010c) and more importantly by agreeing to RES investments and not letting petty self-interests such as ‘the not-in-my-backyard syndrome’ get in the way of the common good (WWF, 2010). These were promoted as morally right attitudes towards the country, people and ‘the environment’. Complex mentalities and practices were thus employed for creating wind energy subjects disciplined to the structural changes necessary for the growth of wind parks and to local wind park projects.

Concurrently with this discourse, and under conditions of economic crisis and structural adjustment impelling the growth of private investments, the governments instituted legislative regulations for attracting private wind park investments from 2010 onwards (see following sections). In 2012, Greece agreed to a second structural adjustment program co-formulated by troika and signed new MoUs. Included in the MoUs were the completion of ‘the transposition and implementation of the renewable energy Directive’, ‘a plan for the reform of the renewable energy support schemes such that they are more compatible with market developments and reduce pressure on public finances’ and ‘measures for the development of wind and solar energy resources’ (Greece MoU SEPC, 2012: 764). These were incorporated in the structural reforms across Greece for improving its business environment and free-market competition and enhancing its economic growth (Greece MoU SEPC, 2012: 753–770). New regulations by the governments followed (see following sections) for further boosting private wind park investments and reconfiguring the green energy market.

As a consequence of crises-inspired restructuring in the clean energy sector, combined with and embedded within the green energy discourse mentioned, private wind parks exhibited significant growth from 2010 onwards. The country shifted to investments in industrial-scale wind parks (Hadjimihalis, 2014a) and in almost eight years the installed wind capacity more than doubled: 2739.4 MW in July 2018 (Operator of Electricity Market (OEM), 2018a). Figure 1 depicts the distribution of installed wind capacity within Greece. Transnational companies further penetrated and now pervade the wind energy sector. TERNA Energy, Ellaktor, Iberdrola-Rokas, EDF EN, Enel Green Power, EUROPE Energy, EREN Group and PROTERGIA dominate as producers (about 73% share), with PPC Renewables⁴ and smaller companies following (Hellenic Wind Energy Association (HWEA), 2017, 2018a). The transnational corporations Vestas, Enercon, Siemens-Gamesa and Nordex dominate as wind turbine suppliers (about 98% share) (HWEA, 2018a). There is no wind turbine production in Greece.⁵ This change and growth have been accompanied by green grabbing of land, financial and natural resources. The following sections discuss the measures instituted vis-à-vis green grabbing processes, mechanisms and key outcomes.

Financial resources grabbing: state subsidisation and financial expropriation

State subsidisation represents the first mechanism through which wind energy producers have been appropriating large amounts of funds. It has been occurring in two ways: direct subsidisation through funds or tax exemptions and subsidisation through the Feed-in Tariff (FIT). Firstly, before February 2010 direct state subsidisation involved 15–35% of the investment costs or 60–100% tax exemptions according to the company’s size and the project’s geographical area (Law 3299/2004, 3522/2006, 3468/2006), while after it 15–50% or 15–50%, respectively and accordingly (Law 3908/2011, 4146/2013). From 2010 until the end of 2012 €784 million were invested in wind parks (HWEA, 2012, 2013), while about €1 billion was invested in 2015. A substantial part of these funds have thus been covered by direct state subsidisation. Also, at least €108 million of direct state subsidies were approved under Law 3908/2011 only in 2013 (Hellenic Republic–Ministry of Economy, Infrastructure, Maritime Affairs and Tourism (HR-MEIMAT), 2015a, 2015b).

Secondly, RES producers can sign a sale contract with the system manager for 20 years for the FIT (Law 3468/2006). An actor from the Ministry of Environment, Energy and Climate Change (YPEKA) explained that RES investments need to be subsidised at the price of the kWh (i.e. the FIT) additionally to the price of conventional fuels for them to



Figure 1. Distribution of installed wind capacity in Greece for July 2018 based on an estimated total of 2739.4 MW. Created by the Author based on statistical data from OEM (2018b) and HEDNO (2018).

be viable.⁶ In 2010, the PASOK government increased the wind park FITs set in 2006 (Law 3468/2006; 3851/2010).⁷ It also instituted a 40% target for energy production through RES until 2020 (Law 3851/2010) and huge limits of installed power for all wind parks: 4000 MW for 2014 and 7500 MW for 2020 (Ministerial Decision (MD) 19598/2010). In these ways, the government significantly propelled private wind park investments and indirectly provided public funds for them. Siamanta (2017) demonstrates that very high FITs for photovoltaics and other state measures since 2010 led to an investment photovoltaic bubble and a deficit in the public RES Fund, which reached €550 million in 2014.⁸ However, wind parks also played a role in the deficit creation and accumulation, although in a smaller degree. About €2.5 billion were given by the governments for paying the wind park FITs compared to about €7.2 billion given for the photovoltaic FITs (i.e. more than one-third) between 2012 and 2017 (OEM, 2018c). Also, as the above suggest, while photovoltaics were

subsidised with very high FITs, wind parks were subsidised with attractive FITs and directly by substantial funds for investment costs and tax exemptions.

To shrink the RES deficit and continue photovoltaic and wind park FIT payments the PASOK and later governments instituted and/or increased a number of green levies paid by electricity consumers (see OEM, 2018a). The most important is the Special Levy for Reducing Air Pollutant Emissions, instituted in 1999 and paid by electricity consumers via electricity bills. From the end of 2010 until today the Levy increased dramatically for domestic and small business consumers: from 0.30 to 24.77 Euro/MWh and from 2.49 to 27.79, respectively (MD 22473/2006, 11484/2010; RAE Decision 621/2016). Electricity consumers paid about €5 billion under this Levy from 2012 until the end of 2017, while it is expected that they will pay about €1.7 billion in 2018 and 2019 (OEM, 2014, 2018a, 2018b). Thus, the state has been grabbing substantial private funds from domestic and small business electricity consumers to make up for the deficit and the profits made (see below) and to be made by wind park producers. This has been affecting low- and middle-income citizens which are still dealing with increasing living costs, new taxes and neoliberal policies under the Greek economic crisis. Until 2015, the lowest income households (30% of households) lost between 34% and 86% of their total income during the economic crisis period (Giannitsis and Zografakis, 2015), intensifying the severity of outcomes from green levies imposed through electricity bills. Also, electricity cut-offs in households reached 30,000 per month in 2013, as they were unable to pay increasing electricity prices under the tough economic conditions (Elafros, 2013). Green levies thus represent the second mechanism through which substantial financial resources have been and are being appropriated by wind energy producers, this time private ones.

To further reduce the deficit, the governments took additional measures, including exceptional contributions from wind parks producers (10% of turnover between July 2012 and July 2014) and reduction of the FITs they had secured (10% for the connected system and 20% for the non-connected one) (Law 4093/2012; 4254/2014).⁹ Later, the new SYRIZA coalition government instituted a new investment regime for wind parks conditioned by troika (Greece MoU SEPC, 2012, Greece MoU, 2015 and their reviews): a feed-in premium (FIP) model and competitive auctions (Law 4414/2016). The FIP model involves a premium (calculated each month) additionally to a baseline price (i.e. the FIT) under 20 year contracts, while auction contracts are signed according to FIPs or FITs.¹⁰ Wind parks were excluded from Developmental Law 4399/2016 for direct state subsidisation or tax exemptions under this new support regime.¹¹

Conclusively, considerable public and private funds have been and are being appropriated by wind park investors under conditions of severe economic crisis through direct state subsidies, tax exceptions, state subsidies through tariffs and green levies. Regarding the latter, personal money income is directly grabbed from domestic and small business electricity consumers, thus dispossessing low- and middle-income citizens of their wealth. These have led to significant profits and capital accumulation by mostly transnational (RES) companies and relatedly transnational wind turbine manufacturers. For example, the operating profits of TERNA Energy Group's energy sector for wind parks in Greece (394 MW) and three other countries (270 MW) from 2013 until the end of 2016 were about €350 million (TERNA Energy Group, 2018), suggesting significant profits from wind parks in Greece. Also, El.Tech.Anemos, which belongs to Ellaktor and has wind parks of 208 MW in Greece, had a net profit of €24.6 million from 2014 until the end of June 2017 (El.Tech.Anemos, 2018). As these examples indicate, significant profits were made despite the contributions/tariff reductions, as wind park investments remain viable and profitable. Confirming the latter, the head of structured finance of Alpha Bank SA in

Athens mentioned in 2016 that wind parks are: ‘one of the most attractive and safe sectors to finance. The risk profile is very strong, there’s good credit and large players . . . It’s booming and will be for the next five to ten years’ (Hinterstein, 2018: no page).

Two billion Euros will be further invested in wind parks from 2018 to 2020 according to the licenses given by the state (Ministry of Environment and Energy (MEE), 2018a). It is yet unknown how the FIP and competitive auctions models will evolve in the Greek reality. However, large development banks, such as the European Bank for Reconstruction and Development (EBRD), are now getting involved in Greek clean energy deals and have approved multi-million Euro loans for (hybrid) wind parks (e.g. EBRD, 2018). This suggests in theory profitable future wind park investments.

Land grabbing: Privatisations, buy-offs and seizures

Wind parks in post-crisis Greece have also involved public and private land grabs by (transnational) companies. This includes grabbing public land (i.e. state-owned and managed land of common use) from the state and ultimately from prior local resource-users through privatisation and extended leasing.¹² It also includes private land grabbing through expropriations, buy-offs and long-term leases.¹³ The former has been more relevant since wind parks are installed on windy mountaintops and these areas are mostly public.¹⁴ Investors tend to target state-owned lands,¹⁵ as these can be acquired more easily. The total amount of mountainous, mostly public, land grabbed until the end of 2013 is about 10,142 hectares (Hadjimihalis, 2014a; MEE, 2018b). This suggests significant land grabbing until today as the installed wind capacity has substantially increased since then.

Public land grabbing has been facilitated by the state through three key ways, which indicate how particular types of land are rendered by it as ‘waste’ (in the sense mentioned earlier) and legible for private RES investments. Firstly, the state characterised RES projects as ‘national priority’ works through Law 3851/2010, while since 2001 RES projects were also characterised as ‘public interest’ ones (Law 2941/2001). The Constitution of Greece (2008: 142) states: ‘Alteration of the use of forests and forest expanses is prohibited, except where agricultural development or other uses imposed for the public interest prevail for the benefit of the National Economy’.¹⁶ Also, Law 2941/2001 amended Laws 998/1979 and 1822/1988 allowing RES works in forests and forest expanses. This means that through the older 2001 and the newer 2010 Law public forests and forest expanses can be exploited (i.e. privatised, leased) by the state for introducing wind parks framed as for the public interest and of national priority. For this, and secondly, public land grabbing has been enabled by the designation of various types of lands (e.g. pasture lands, grasslands) as ‘forests’ or ‘forest expanses’ through so-called Forest Characterisation Acts (FCAs) during the licensing process of wind parks (Law 998/1979; 3208/2003; 3851/2010). This process involves issuing a number of licenses, approvals and terms, including land approvals.¹⁷ When companies apply for land approvals the relevant Forest Inspection Agency has to characterise the land under question as a forest/forest expanse or not in one month without considering ownership and then FCAs are issued and published (Law 3851/2010). Pasture lands and grasslands are characterised and managed as forest expanses (Law 998/1979; 3208/2003). If the area is public and is characterised as a forest/forest expanse then the state has – according to the above – the right to sell/lease it to companies. Thirdly, public land grabbing has been further ‘refined’ by the ongoing mapping and registration of land. The formulation of a cadastre (i.e. land ownership database and map(s)) is one of the state’s main obligations (Constitution of Greece, 2001). However, the state had exhibited a lack of action on the matter for many years. Less than 20% of the cadastre was formulated until 2014 (National Cadastre and Mapping Agency (NCMA) 2014).

Recently, however, the state initiated its completion by 2020 (NCMA, 2014). This represents a key way through which vast amounts of land are characterised through forest maps as public forests/forest expanses and can thus be grabbed by companies according to the above. Since 2009, the exchange value of land has been devalorised/depreciated due to the crisis, with monetary values having decreased by 15–30% (depending on the area) compared to 2005 prices (Hadjimihalis, 2014b). This suggests the grabbing of substantial public land by (transnational) companies written as ‘waste’ by the state at lower costs.

The ‘method of forest characterisation’ also concerns private land grabbing. After FCAs are published, private land owners can submit objections (Law 3851/2010). Yet, this can lead to costly long-term legal disputes, while licensing processes continue despite legal disputes (Law 3851/2010). Private lands are then presumed as public by the state (i.e. expropriation) and are leased/sold to companies in the name of the ‘public interest’ as a ‘national priority’ (Law 2491/2001, 3468/2006, 3851/2010; The Constitution of Greece, 2008). Compensations given to private land owners, provided they have valid land titles, are calculated based on the value of forest land, which is lower than the value of other types of land. However, various areas across Greece are subject to peculiar proprietary regimes (e.g. Crete, Euboea, in Peloponnese) due to country’s history, with valid land ownership titles missing in many (mountainous) areas. This means that in such cases land owners cannot be compensated when their land is expropriated. A characteristic example, which also indicates illegal state processes, is Apopigadi in Crete. From 2004 until 2006 the state declared through FCAs 270 ha of public and private land as public forest expanse for the introduction of three wind turbines by EDF EN (PCNAIRES, 2015; SYRIZA, 2010). Private land was seized without compensations due to missing titles and since some FCAs were not published correctly (Hellenic Republic-Periphery of Crete (HR-PC), 2010; TIISFORS–Apopigadi, 2015). Some land owners thus could not appeal to them despite having ownership titles.¹⁸ Locals resisted land grabbing through organised protests and obstructions of the company’s work and some were arrested and prosecuted (e.g. Dionellis, 2013; Maridakis, 2014).¹⁹ The acts were published correctly in 2011, but the company had already acquired the land.²⁰ An actor from the local Initiative mentioned that many people in Apopigadi lost their land, while that land grabbing was organised in such a way that no one became aware of it until the bulldozers came.²¹ A local inhabitant whose land was seized without compensation despite having ownership titles notes:

We have 20 trees which produce 2.5 to 3 tonnes of chestnuts on about 0.2 to 0.4 hectares. My grandfather bought this land in 1982. He was a dockworker in Piraeus, had 5 orphan children...my grandmother had died. He bought [with a bank loan] this land on the mountain. Initially, he didn’t have the money to pay the loan’s instalments and every now and then he was imprisoned. Now this land was taken from my grandfather [and from us] by the multinational.²²

Interestingly, the work necessitated approximately only 8.4 ha (Decision of Vice Prefect of Chania (DVPC), 2005).²³ In 2014, a new hybrid wind park–hydroelectric–water pumping project by EDF EN received an Environmental Assessment Approval and the rest of land grabbed in Apopigadi will be used for its implementation.

Private land is also being grabbed directly through buy-offs and leasing, as in many cases expropriation of private forests/forest expanses is a timely process and investors seek to buy or lease the areas when it is easy.²⁴ A key actor from Iberdrola-Rokas mentions:

The private owner... is informed for the project only when... it has reached a very advanced stage [when you apply for the FCAs]... You then visit the private owner and here lies the

paradox. You inform him you have licenses for constructing a wind park at this location. He immediately responds ‘you have issued licenses for my property without asking me?’²⁵

Private land owners are thus informed of the pending loss of their land only when the work has reached a very advanced stage, which given the long licensing process is rather unlikely will stop at this stage. Companies then provide promises to land owners concerning financial returns and job positions and/or incentives to local communities for counteracting land grabbing impacts under a ‘win-win’ discourse. Concerning the former, a key actor from the Pan-Cretan Network Against Industrial RES (PCNAIRES) in Crete mentions:

The companies promise land owners all sorts of things, such as that someone from the family will be employed as the guard [of the wind park]...Generally companies promise things here and there...Many dealings concerning land are done with shepherds and promises by companies [behind closed doors]. A company approached me. I said I want to discuss in public. They never called me back.²⁶

Corruption, bribing and clientelistic relationships between companies and elected local lords or representatives of government are also the case. For example, an Apogadi inhabitant mentions: ‘The civil servant told me and my brother: “I will give you now €120,000 in cash if you let the wind turbines to be installed on your plot”’.²⁷

Concerning the latter, an actor from Iberdrola-Rokas notes:

they [locals] can tell you what they want...They want roads to be opened? Roads for easily accessing their plots? In parallel, we can take other counterbalancing measures for helping the local community. This is the company’s practice...I have seen this being implemented in the company, I have done it myself...You [the local community] win something, I [the company] win something.²⁸

In both cases, private land owners find themselves held hostage to accomplished facts. Given the economic crisis and constant austerity measures, which have resulted in increased poverty, unemployment and low incomes generated from land which prevent social reproduction, land owners are forced to sell/lease their lands aspiring to economic returns and/or employment for a family member. Also, the high cost of long-term legal disputes represents a deterrent factor for refusal under these economic conditions. This form of top-down private land grabbing is intensified by the afore-mentioned mapping and registration of land. Forest maps for some areas in Greece have already been published and private land owners are called to submit objections (with a fee) and present their ownership titles. This means that in cases where land owners cannot directly prove ownership due to missing titles they have to go into costly long-term legal battles with the state and/or cannot get compensated for land expropriated and/or cannot sell/lease their land to companies. An example is South Karystos in Euboea. As the South Karystos Environmental Protection Association mentions (PCNAIRES, 2018b), according to the maps recently published almost all private forest land of South Karystos is characterised as public forest/forest expanse and private land owners are called to prove ownership with many not having valid titles.

Meanwhile, land grabbing also involves the appropriation of land of the European protection and conservation NATURA 2000 network, land which is state-owned or in cases privately owned. About 20% of the total installed wind capacity is attributed to areas of the network (HWEA, 2018b), since ‘70% of the areas with high wind dynamic is found inside NATURA areas’.²⁹ Wind parks are permitted in these areas by special provisions in Laws (Law 2941/2001; 3468/2006; 3851/2010), Ministerial Decisions and the

National Special Spatial RES Plan (2008) according to specific criteria (Table 2).³⁰ According to these provisions, public land is leased or sold by the state to companies, while private land is expropriated, or leased/sold by private owners to companies as described above for a less time-consuming process.³¹ Land registration and mapping also plays a key role in this, as the state is updating the precise limits of these areas through the cadastre (NCMA, 2018), indicating how such areas are rendered too as ‘waste’ and legible for wind park investments.

Lastly, wind park growth and associated land grabbing has been further facilitated through other regulations instituted since 2010. This involves the simplification and diminishment of the licensing process, including of environmental requirements (Table 3).

Socioecological impacts of land grabbing

This land grabbing wave described involves important socioecological implications. Firstly, the appropriation of various public pasture lands, grasslands and mountainous areas entails the creation of new authorities in the access, use and management of natural resources and the denial of access to them to prior local users entailing their marginalisation. For example, a key actor from PCNAIRES noted that there exist various cases in Crete where livestock farmers were denied access to previously public lands due to their privatisation/leasing for wind parks.³² Another actor mentioned: ‘The company has filled the mountain with cameras. Whenever they see us on the mountain close to the installations they threaten us. We tell them we have animals that need to graze. Yet, they tell us to go away and that if they see us there again they’ll [order the police to] lock us away’.³³ The above not only indicates the securitisation of wind parks against locals observed in other wind park experiences (Dunlap, 2018), but also has impacts on local livelihoods in rural areas where for decades actors, such as stock-breeders, have depended on the resources these lands provide.³⁴ The greatest wind park growth is observed in Central Greece, Peloponnese, Eastern Macedonia and Thrace and Crete (Figure 1). These regions exhibit a high degree of stock-breeding activities, while stock breeding is the productive activity of a considerable part of the local population of these areas (Hellenic Statistical Authority (HSA), 2009a, 2009b, 2015). In many cases stock-breeding represents the only productive activity and source of income in mountainous areas in these regions. Moreover, as the Association of Greek Stock-Breeding (AGS) mentioned in 2013, stock breeding is severely endangered due to the economic crisis and the government’s associated policies, with more than 15,000 stock breeders having abandoned their profession and many more being in the verge of abandoning it (AGS, 2013). Under the current economic conditions in Greece, new taxes for stockbreeders and rising living costs additionally marginalise and impoverish such actors. Secondly, financial compensation for private grasslands and pasture lands expropriated do not correspond to the value of the land and the income previously earned through its working, especially considering the afore-mentioned devalorisation/depreciation of the exchange value of land. In some cases, this land may represent the only source of livelihood of shepherds or farmers. This too entails dispossession, impoverishment and marginalisation of shepherds and farmers, which is compounded by the economic crisis, reoccurring austerity measures, new taxes and rising unemployment. Also, seizures without compensations, such as in Apopigadi, entail extreme cases of poverty and social exclusion. An Apopigadi inhabitant mentions: ‘The land seized in Apopigadi was used for agricultural and livestock purposes. People were making a living from their land. They didn’t have other livelihood means. Now they can’t live’.³⁵ Another Apopigadi inhabitant whose land was seized without compensation notes: ‘I don’t have money to even go from my village to the city’.³⁶

Table 3. Simplification/diminishment of the licensing process of wind parks.

Law/ministerial decision	Developments
Law 3894/2010	Fast-tracking procedures for licensing large wind parks in only two months.
Law 3851/2010	<ol style="list-style-type: none"> 1. The production license is dissociated from the process of environmental licensing and will not deal with environmental issues. 2. A Preliminary Environmental Assessment (PEA) is no longer needed (now optional). The process of issuing an Environmental Assessment Approval (EAA) is thus reduced to about 4 to 5 months (formerly up to 3 years).
Law 3982/2011	Fast-tracking of the licensing procedure for business parks with activities of producing electrical energy by wind parks.
Law 4014/2011	<ol style="list-style-type: none"> 1. The process for the environmental licensing of works and activities is simplified and rationalised and the required time for issuing the relevant decisions is reduced. 2. A Preliminary Environmental Assessment (PEA) is no longer needed (now optional). The process of issuing an Environmental Assessment Approval (EAA) is thus reduced to about 4 to 5 months. 3. For issuing Environmental Assessment Approvals (EAAs) needed for wind parks likely to have very important or important consequences to the environment (i.e. category A) the co-signatures of other Ministers is not needed anymore. This also now stands for renewing or altering EAAs. 4. The validity period of EAAs is prolonged to 10 years (or to 12 for works having ISO certification and 14 years for those having EMAS certification or equivalent). The validity period of already under place EAAs is prolonged until the completion of the 10th year since they were issued. 5. The processes for evaluating Environmental Impact Assessments (EIAs) for wind parks are now standardised. 6. Wind parks classified as works and activities characterised by local and non-important environmental implications (i.e. category B) no longer need an EIA and are now automatically subject to Standard Environmental Commitments (SECs): a simple statement/application is needed by the wind energy producer.
Ministerial decision 1958/2012	Wind parks of installed power more than 0.02 MW and less than 5 MW (or less than 0.02 MW in NATURA 2000 areas) are incorporated in category B of works and thus do not need an Environmental Impact Assessment (EIA) and are only subject to Standard Environmental Commitments (SECs).
Ministerial decisions 48963/2012, 3791/2013 and 170225/2014	<ol style="list-style-type: none"> 1. Standardised SECs for wind parks of category B. 2. Standardised specifications for EIAs and EAAs for wind parks of category A.

Land grabbing has also led to intense reactions from local communities and associated struggles across Greece³⁷ that continue until today. The majority of these conflicts concern areas where wind park growth has been extensive, such as Peloponnese, Euboea and Crete.³⁸ These local struggles are enacted mainly through applications to Greece's Supreme Court for

ceasing projects, local protests and organised demonstrations (e.g. PCNAIRES, 2018a; SKEPA, 2018). To mitigate reactions Law 3851/2010 instituted a retributive incentive for inhabitants of villages where wind parks are installed (1% of turnover of RES works) under the framework of a ‘win-win’ green energy production. In 2017, the SYRIZA coalition government gave about €17.5 million (1% for 2010–2014) to about 376,000 domestic electricity consumers in 272 townships through discounts in their electricity bills (MEE, 2017). While this could ameliorate some of the unfavourable effects of land and financial resources grabbing discussed above, it does not ‘mitigate’ important impacts on livelihoods, such as in cases where private land owners lost their only source of income.

Further, there are environmental implications worth considering. Introducing wind parks in landscapes entails interventions to the biophysical world, such as opening roads, excavations, blasting and filling, land and vegetation clearing for the construction of worksites and foundations, and placement of concrete. Wind parks can thus have direct and indirect adverse impacts on biodiversity and cumulative environmental impacts, such as wildlife displacement and habitat conversion (World Bank Group (WBG), 2015). The environmental impact of a wind park could be geographically limited, as an actor from HWEA claims.³⁹ However, extensive wind park growth throughout Greece entails a noteworthy intervention to the biophysical environment and cumulative environmental impacts. Greece is a major ecological hotspot (Myers et al., 2000) with a remarkable diversity of species, ecosystems, biocommunities and genetic diversity which are ‘critically endangered’ (Legakis and Maragkou, 2009). This, along with the degradation of environmental regulation for wind parks previously discussed, intensifies the severity of environmental impacts. Also, cases of wind parks violating issued environmental terms (WWF, 2013), the absence of state monitoring on issued environmental terms⁴⁰ and on the implications of operating wind parks (WWF, 2013), as well as inadequate, unrelated and/or copy-paste EIAs and Ornithological Studies (WWF, 2013),⁴¹ further intensify the severity of outcomes in this particular socioecological context. Meanwhile, the appropriation of NATURA 2000 land has led in cases to deaths of rare, endangered and protected birds (e.g. HOS, 2011). A key actor from HOS mentions: ‘we have seen very negative implications for birds, theoretically and practically’.⁴² Significant implications also arise for ecosystems and other species in these protected areas. This is because Greek authorities are violating the Habitats Directive 92/43/EEC and Directive 2001/42/EC on Strategic Environmental Assessment as they have not sufficiently considered the (cumulative) ecological implications of wind turbines in NATURA 2000 areas and the network (EC, 2014), areas which are protected only ‘on paper’ (e.g. Mediterranean SOS Network (MedSOSN), 2012).

Discussion

The previous indicated that wind energy development in post-crisis Greece has involved interrelated marketisation, reregulation, deregulation and privatisation strategies, strategies which represent key ways through which nature (conservation) is being neoliberalised (Apostolopoulou and Adams, 2015; Bakker, 2010; Büscher et al., 2014; Castree, 2010a). Such strategies here involve: favourable FITs; very favourable 2020 and 2040 goals; direct subsidies or tax exceptions; registering areas including forests/forest expanses; ameliorating/instituting a top-down process for land grabbing; privatising/leasing public land; absence of structural measures to avoid large profits by wind park investors and hence partly the RES deficit creation/accumulation; increasing/instituting green levies; reducing FITs but increasing contracts’ duration; new FIP and competitive auctions models; simplifying/diminishing the licensing process; fast-tracking; and absence

of environmental monitoring. While neoliberalism's penetration in the energy sector is ongoing since at least the 1990s, these measures, along with the creation of disciplined wind energy subjects, have been deepening its penetration, constituting materially an ongoing process of nature's neoliberalisation regarding wind parks in the post-crisis era. State rollback was indeed the case. Yet, wind park growth in post-crisis Greece can be conceptualised as a manifestation of 'roll-out neoliberalism' (Peck and Tickell, 2002), whereby there was active state-building and regulatory reform – conditioned by troika in cases (see below) – for further appropriating and commodifying aspects of nature and expanding the green energy market.

These afore-mentioned strategies have facilitated green grabbing of public and private land, financial and natural resources by mainly transnational (energy) companies operating in Greece. This has materialised due to the instituting of a particular green energy discourse and associated 'win-win' rhetorics. Two crises (climate change, economic) have been manipulated for legitimising green grabs, whereby as a manifestation of 'disaster capitalism' (Klein, 2007) economic and environmental crises and credentials enmesh and reinforce each another for further drawing nature into financialised markets and facilitating capital accumulation (Fairhead et al., 2012; Sullivan, 2013). Green grabbing has involved (new) material and discursive alliances between the governments, state bodies, ENGOs, media, companies and regional political leaders/elites. The state, however, is the key facilitator of green grabbing in support of domestic and foreign capital. Green grabbing is made 'legal' through this neoliberalisation process and the associated structural and economic mechanisms put in place and following a new opportunistic and lucrative regime of investments and large-scale privatisations after 2010. The state not only furnishes (transnational) companies with land and natural resources (e.g. Levien, 2013; Yennetti et al., 2016). Rather, further and additionally to other land grabbing and wind park cases (e.g. Cotula et al., 2009; McCarthy et al., 2012; Siamanta, 2017) it also furnishes them with significant public and private funds through direct and indirect subsidies and green levies. It thus expropriates also financial resources and drains substantial public funds under conditions of severe economic crisis. Moreover, elites are not only capturing the control of land and natural resources found therein (e.g. Dunlap, 2018), but specifically the ability to benefit from exploiting wind resources at low costs, entailing (transnational) corporate control grabbing of wind and natural resources of these lands (cf. Margulis et al., 2013). Contrary to public-private wind parks and projects (e.g. Brannstrom et al., 2017; Chung, 2017; Yenneti et al., 2016), the state here does not have a material stake of energy production in private wind parks. It is expanding this industry by rolling out private wind parks, while maintains a negligible function in wind energy production (less than 3%). Thus, the state is transferring almost absolute rights of this extractive industry to private capital, maintaining only minimum legitimacy and sovereignty over the regulatory framework. Therefore, green grabbing here also concerns the grabbing of rights over almost an entire industry by private capital.

Troika has incited green grabbing through an explicit promotion of wind parks⁴³ and impositions in the country's structural adjustment programs such as: developing wind parks, accelerating energy investment projects, fast-tracking of large FDI projects, accelerating and completing the cadastre, revising 12 regional spatial plans for compatibility with RES sectoral plans, increasing biannually the RES Levy, speeding and simplifying the process of land expropriations (Greece MoU SEPC, 2010, 2012 and their reviews). However, all the Memoranda did not mention wind turbine production in Greece. Wind turbines are invented, manufactured and supplied by the largest transnationals in the world (e.g. Siemens-Gamesa), while are used by the largest energy transnationals in the world, some

of which (e.g. Iberdrola, EDF EN) operate in Greece. All these suggest troika's explicit purpose of aligning the country with a transition to wind energy development to the benefit of these technology-producing and energy-producing transnationals. The structural adjustment programs have thus been used as, amongst other things, a way to tie down a country to implement a green economy policy – not in name but in aim – and the necessary structural changes needed to do so for benefiting these transnationals. Indebted nations threatened with bankruptcy are extremely amenable to agree to policies for the liberalisation of markets and privatisation of public assets when coerced by international financial institutions (Harvey, 2005). This has been very common since the 1980s across the global South, whereby neoliberal policies in nature-centered sectors, such as liberalisation of investment in agriculture, were mandated for indebted countries through structural adjustment programs. Here, there is an intensification of this phenomenon for new green transformations in the global North in line with the EU's and IMF's transition towards 'the green economy' and their RES policy, as well as with intertwined 'green economy' and 'low carbon' discourses consolidated politically at European and international levels, further deepening the penetration of nature by capital.

However, the state is not a passive recipient of imported policies. Wind parks (and photovoltaics) in the post-crisis era were promoted by the governments (PASOK, PASOK-New Democracy) through their specific policies instead of other RES technologies due to the strong private interests behind them⁴⁴: the large (energy) companies operating in Greece such as TERNA Energy and Iberdrola-Rokas (Siamanta, 2017). This can be understood under the clientelistic relationships the state maintains with the private sector.⁴⁵ Meanwhile, as Siamanta (2017) argues, the government (PASOK-New Democracy) advanced and promoted through its agreements with troika the powerful private interests regarding RES works which existed within and outside (i.e. wind turbine-producing transnationals) the country prior to the agreements for retaining its power in a politically unstable period when Greece's long established two-party system was collapsing.

Further, the paper reiterates other key issues in green/land grabbing and wind park cases, namely: complicated land relations and rights; complex mechanisms, subtle procedures and/or deceptive tactics for appropriation; impacts to livelihoods through denial of access to resources previously used; ecological distribution conflicts; unequal power relations and the importance of context and history (e.g. Brannstrom et al., 2017; Dunlap, 2017, 2018; Gardner, 2012; Yenneti et al., 2016). Concerning the later, green grabbing through wind parks in post-crisis Greece also builds on a long history of macro-land grabs (in terms of size and value) in the country accommodating privatisations and large-scale investments (e.g. large infrastructures, tourist developments) by large real estate developers, banks and monasteries from the 1990s until the eruption of the crisis (see Hadjimihalis, 2014a). Further, it involves clientelistic politics, political corruption and state authoritarian approaches, which relate to Greece's political tradition and culture and two of its key features, clientelism and state paternalism.⁴⁶

Green grabbing, combined with the effects of the structural adjustment programs and the biodiversity conservation regime, is producing novel constellations of social inequality and environmental degradation in Greece. It has been leading to the marginalisation and impoverishment of local shepherds and farmers, the impoverishment of domestic and small business electricity consumers, conflicts, the undermining of conservation and impacts on local biodiversity. It has also resulted in capital accumulation by mostly transnational (RES) companies and relatedly transnational wind turbine manufacturers. As the above suggested, this represents the key political motive behind the recent wind park growth in Greece.

Outcomes of green grabbing and the neoliberalisation of nature (conservation) are depended upon the specific context and thus varied, mixed and (may) also involve positive ones. This is also true for wind parks and this case. Wind parks can reduce GHGs emissions by directly feeding clean energy into a country's energy balance mitigating accelerated climate change. In Greece, GHGs emissions for the energy sector have dropped since 2010 (Bank of Greece (BOG), 2018). Yet, this reduction is not only attributed to photovoltaic and wind park growth, but mostly to the economic crisis and associated reduction of energy consumption (BOG, 2018; Eurostat, 2018). However, large-scale wind parks require transformations of landscapes and ecosystems, alteration of local livelihoods and cultural practices performed in landscapes, reconfigurations of private and public property rights and relations, and transformations in the access to and control of natural resources. These, along with the recorded outcomes of wind parks discussed earlier and the Greek case, suggest that large-scale private and public-private wind parks involve unfavourable dynamics and impacts on socio-nature albeit differentiated in each context.

Dunlap (2018) sees wind energy development as continuing land and resource grabs and industrial development for maintaining market expansion. Relatedly, several political ecology scholars emphasise that (new) green neoliberal policies deployed to respond to climate/ecological and economic crises are used to (temporarily) mediate capitalism's inherent contradictions and create new (stable) accumulation avenues for its reproduction and expansion (e.g. Büscher and Fletcher, 2015; Fletcher, 2012; Sullivan, 2013; Swyngedouw, 2010, 2011). Specifically, McCarthy (2015) explores the global shift towards RES, propelled by global energy suppliers, state and multilateral initiatives and large capital flows. He suggests it represents a socioecological fix (or nested set of fixes) to current forms of crisis and contradictions of fossil-fuelled energy production for maintaining capitalist accumulation by incorporating new elements of nature into circuits of capital (McCarthy, 2015). This case indicates that in an actual moment and case of economic crisis, capitalist inward collapse and neoliberal structural adjustment, new/further aspects of the biophysical world are being appropriated and commodified – in the ways described – for facilitating capitalist accumulation based on economic recovery and climate change mitigation narratives. Arguably then, neoliberalisation and green grabbing are here occurring for providing a socioecological fix (a combined 'spatio-temporal' (Harvey, 2003, 2005) and 'environmental' (Castree, 2008) fix) to capitalism's overaccumulation crisis and its environmental contradiction for (temporarily) advancing capitalism, with wind parks serving as such a fix to the Greek economic crisis and climate change. Private (and public-private) industrial wind parks may thus very well be not only impacting negatively on (local) people and ecosystems, but also a vehicle for capitalism's reproduction and expansion through new accumulation avenues temporarily mediating its key contradictions.

Conclusion

In this paper, I explored wind parks in relation to green grabbing and the neoliberalisation of nature in a particular context and illuminated some of their unfavourable outcomes. I argued that private industrial wind parks in post-crisis Greece, and in general, serve as a socioecological fix to the economic and climate crises. Wind energy production and the specific coordinates involved are of course varied and unpredictable in their outcomes. However, it is still reasonable to anticipate that the extensive growth of wind parks for a transition to an alleged carbon-neutral world is likely to produce various adverse outcomes, as it requires substantial reconfigurations of socio-nature. Meanwhile, the unceasing accumulation of capital and quest for surplus value the capitalist system necessitates

entails increasing commodity production and consumption and hence ever expanding energy production and consumption. Expanding energy production through RES under this framework may thus very well be sustaining the current capitalist order, in turn engendering recurrent socioecological problems in a loop. These urgently call for extensive empirical research on wind parks and the reconfigurations they entail for understanding variegation and broader similarities and dynamics, but also for identifying limitations and ‘openings’ for radical alternatives regarding the (energy) production-consumption dipole.

Highlights

- Ongoing process of nature’s neoliberalisation in relation to wind parks, involving specific measures and strategies.
- Green grabbing of public and private land, financial and natural resources by large transnational (energy) companies.
- Unfavourable consequences for local shepherds and farmers, domestic and small business electricity consumers, conservation and local biodiversity.
- Wind parks in post-crisis Greece serve as a socioecological fix to the Greek economic crisis and climate change.
- Wind parks involve variegated impacts on socio-nature and represent a new avenue for capitalist reproduction and expansion.

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Supplemental material

Supplemental material for this article is available online.

Notes

1. Installed capacity is the maximum power a station can produce.
2. Greece counts numerous convictions for violating European environmental law.
3. This is a support mechanism, whereby a guaranteed stable price is provided to producers for selling energy under long-term contracts.
4. PPC Renewables accounts for about 3% of the total installed wind capacity (HWEA, 2018a) through public and public-private wind parks. It is uncertain if these will be privatised in the context of PPC’s privatisation (see Greece MoU SEPC, 2012), but a key actor from PPC

- Renewables mentioned in 2013 that there was an explicit purpose to privatise all PPC Renewables (Interview, 18 July 2013).
5. Interview: PPC Renewables/Hellenic Wind Energy Association (HWEA), 18 July 2013.
 6. Interview, 03 July 2013.
 7. 20.3% and 17.5% increase for wind parks more than 50 kW in the connected system and non-connected system, respectively.
 8. This Fund, managed by the Operator of Electricity Market (OEM), provides FIT payments for RES producers. OEM sells the green energy it has bought from RES producers to the energy supplier (i.e. PPC) at a lower price and the Fund has been subsidising this difference mainly through green levies (Siamanta, 2017) (see below).
 9. The contributions were cancelled from April 2014 and contracts could be extended by 7 years due to FIT reductions.
 10. Wind parks of less than 3 MW can have FIT prices.
 11. Except hybrid ones of (less than) 5 MW.
 12. Interview: YPEKA, 03 July 2013.
 13. Interview: YPEKA, 03 July 2013; Interview: Terna Energy, 03 September 2013.
 14. Interview: TERNA Energy, 03 September 2013; Interview HWEA/PPC Renewables, 18 July 2013.
 15. Interview: YPEKA, 03 July 2013.
 16. Contrary to a forest, a forest expanse has sparse vegetation which after 2016 equals canopy of less than 25% (PD 32/2016).
 17. Interview: Rokas-Iberdrola, 09 September 2013.
 18. Interview: The Initiative of Inhabitants of Spina, Florion, Old Roumaton and Sebrona (TIISFORS)—Apopigadi, 18 March 2015.
 19. Interview: TIISFORS—Apopigadi, 16 May 2015.
 20. Interview: TIISFORS—Apopigadi, 18 March 2015.
 21. Interview: TIISFORS—Apopigadi, 18 March 2015.
 22. Interview: TIISFORS—Apopigadi, 16 May 2015.
 23. Interview: TIISFORS—Apopigadi, 18 March 2015.
 24. Interview: YPEKA, 03 July 2013.
 25. Interview: 09 September 2013.
 26. Interview: 10 October 2013.
 27. Interview: TIISFORS—Apopigadi, 18 March 2015.
 28. Interview: 09 September 2013.
 29. Interview: Greenpeace, 23 July 2013.
 30. A Special Ecological Assessment is also needed.
 31. Interview: 03 July 2013.
 32. Interview: 08 October 2013.
 33. Interview: TIISFORS—Apopigadi, 16 May 2015.
 34. The character stock-breeding has assumed in most areas is free grazing. Grazing is permitted in public forests, forest expanses and grasslands, except in specific cases for the protection of ecosystems (Legislative Decree 86/69) (e.g. Special Protection Areas where grazing is forbidden or is subject to Management Plans).
 35. Interview: TIISFORS—Apopigadi, 18 March 2015.
 36. Interview: TIISFORS—Apopigadi, 16 May 2015.
 37. For example Interview: Rokas-Iberdrola, 09 September 2013.
 38. For example Interview PPC Renewables/HWEA, 18 July 2013.
 39. Interview: 18 July 2013.
 40. Interview: TERNA Energy, 03 September 2013.
 41. Interview: PCNAIRES, 06 September 2013.
 42. Interview: 23 October 2012.
 43. Interview: YPEKA, 03 June 2013.
 44. Interview: YPEKA, 03 June 2013.

45. For clientelism and clientelistic relationships between the state and the private sector see Mouzelis (1986) and Pagoulatos (2003).
46. For state paternalism see Alexandropoulos et al. (2007).

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