# Climate capitalism and the global corporate elite network

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# Abstract

This paper explores the political involvement of transnational corporations and their directors in elaborating the project of 'climate capitalism' advanced to address climate change. Climate capitalism seeks to redirect investments from fossil energy to renewable energy generation, so as to foster an ecological modernization of production and reduce greenhouse gas (GHG) emissions. I use social network analysis to assess the potential for climate capitalism, as a project of a section of the corporate elite, to replace the current 'carboniferous capitalist' regime. Corporate-funded climate and environmental policy groups (CEPGs) constitute major venues for the corporate elite to assemble and plan their response to the climate crisis. By mapping out the network of board-level interlocks between CEPGs and the largest transnational corporate network, and thus well positioned to promote climate capitalism among the corporate elite. Second, I delineate a climate capitalist inner circle that includes the individual members of the corporate community who arguably are able to exert the greatest power to shape climate capitalism. However, many of them, close to the oil and nuclear sectors, may support a long-term transition away from fossil fuels, incompatible with avoiding dangerous climatic warming.

# Keywords

Climate capitalism, Climate politics, Transnational corporations, Interlocking directorates, Inner circle, Social network analysis.

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# Introduction

This paper explores the political involvement of transnational corporations and their directors in elaborating the project of climate capitalism advanced to address climate change. The expression 'climate capitalism' designates the neoliberal attempt to mitigate climate change through market measures that turn aspects of nature into new means of accumulation while minimizing end-of-pipe, direct state regulation of greenhouse gas (GHG) emissions (Newell and Paterson 2010; see also Bumpus and Liverman 2008; Lohmann 2010). At its face value, climate capitalism promotes the use of carbon markets, carbon taxes, and other financial mechanisms as means to redirect investment flows away from the polluting fossil fuel sector and toward more climatically benign renewable electricity generation and energy efficiency initiatives. These new, reorganized investment patterns would foster an ecological modernization of production processes and lead to reduced GHG emissions (Böhm and Dabhi 2009; Newell and Paterson 2010). For its proponents, climate capitalism would thus reconcile capital accumulation and climate change mitigation by making the latter profitable for capitalist firms themselves, hence drawing on their economic interest to draw them into the project of reducing GHG emissions (see e.g. Lovins and Cohen 2011). This project is contrasted with the business-as-usual scenario of fossil fuel driven 'carboniferous capitalism' (Newell and Paterson 2010)<sup>1</sup>, but also with transformative proposals seeking more radical changes in the capitalist political economy, such as those of a 'green new deal', of economic degrowth toward a steady-state economy, or of ecosocialism (Candeias 2013).

Climate capitalism has been harshly critiqued, not the least because carbon markets – still the main climate capitalist policy instrument (Sterk et al. 2015) – appear unlikely to actually lead to a meaningful reduction in GHG emissions (Böhm and Dabhi 2009; Lohmann 2006, 2011; Vlachou 2014). On the contrary, many argue that carbon markets have only been effective in two respects: 1) in facilitating capital accumulation through dispossession and privatization of the commons in the global South, and encouraging speculation and rent-seeking among owning elites (Lohmann 2008:361; see also Foster and Clark 2009; Isla 2015; Fairhead et al. 2012); 2) in delaying action to mitigate global warming, a partly unintended consequence yet also an outcome welcomed by all those corporations dependent on fossil fuels (Derber 2010; Lohmann 2006; Lohmann and Böhm 2012). The latter is especially true since the economic crisis that erupted in 2008 has actually brought a much increased dependence on fossil fuel-based accumulation as a means of generating short-term profits (Bitter 2011; Lohmann and Böhm

<sup>&</sup>lt;sup>1</sup> The expression is from Lewis Mumford (2010 [1934]).

2012). For their part, carbon taxes have had little effect in the few jurisdictions where they have been implemented (Brännlund et al. 2014; Lin and Li 2011; Smith 2011)<sup>2</sup>. Thus, it is argued that in contrast to its discourse of ecological modernization, climate capitalism has had – at least up to now – the same effects as the carboniferous capitalist regime it purports to supplant, that is, to delay GHG emissions reduction while facilitating corporate profit.

Corporate-supported think tanks and policy-planning groups play a crucial role in constructing projects, such as climate capitalism, that seek to maintain capitalist relations by transforming them (van der Pijl 1998). The work performed by these organizations consists in 1) producing knowledge that informs and legitimates certain types of economic governance while delegitimizing others, and 2) mobilizing this knowledge by linking elite networks across sectoral and national boundaries, thus facilitating convergence of ideas and consensus-making (Burris 2008; Carroll and Carson 2003; Carroll and Sapinski 2010). That is, 'they provide an organizational basis for the emergence, articulation, and diffusion of ideas within the groups, factions and classes in which they are embedded' (Sapinski 2015).

In the field of climate politics, corporate-funded climate and environmental policy groups (CEPGs), such as the International Emissions Trading Association and the World Business Council for Sustainable Development, play such a role of knowledge production and mobilization (KPM). CEPGs conduct intensive lobbying with governments and UN agencies to promote climate capitalism. They also send representatives to the yearly UN Conferences of Parties (COPs), where they hold side-events as part of their KPM activities, to which corporate managers and policy-makers are invited (Tansey 2013). More importantly for this paper, by virtue of their organizational structure, they function as places where the corporate elite and other elites can meet, plan strategy, forge consensus on key issues, and create a sense of community around the climate capitalist project (see Carroll and Sapinski 2010; Domhoff 2014). In this way, they constitute major venues where responses to the climate crisis are debated, and provide a crucial capacity to bridge lines of fraction among corporate elites from different regions and economic sectors (Sapinski 2015).

This paper assesses the role of CEPGs in constructing the hegemony of climate capitalism among the global corporate elite. It uses social network analysis (SNA) to map out the constellations of corporate power in which CEPGs are embedded. The analysis will address the question whether climate capitalism, as a hegemonic project (Jessop 1990), stands a chance of overtaking the currently existing regime of carboniferous capitalism and become hegemonic among the global corporate elite. By doing so, it will contribute to found empirically debates

<sup>&</sup>lt;sup>2</sup> The British Columbia carbon tax might be an exception (Elgie and McClay 2013; although see Bumpus 2015).

among analysts of climate politics (see Bond 2013; Hahnel 2012; Lohmann 2011, 2012; Paterson and Newell 2012) and potentially inform political action.

Whereas previous research I conducted outlined the existence of a climate capitalist policyplanning network (Sapinski 2015), this paper assesses the reach of the CEPGs at the core of that network into the very top layers of the global corporate community. This will shed light on the position the climate capitalist project occupies within the broader field of global corporate power. On the basis of this assessment, I will discuss: (1) the possibility of an eventual corporateled transition to a climate capitalist production regime, and (2) what consensus on climate capitalism may actually be achieved given the different political-economic interests represented on CEPG boards. In what follows, I will first provide details on the SNA methodology. The second section will then discuss briefly the discourse and action repertoire of the CEPGs that make up the core of this study. Next, the main analyses explore where CEPGs stand within the global field of corporate power, here operationalized as the 500 largest corporations in the world and the network of board-level interlocks that connects them together (Carroll 2010). For this, (1) considering the network at the interorganizational level where corporations and CEPGs link together, I will look at the position CEPGs occupy among the network of G500 interlocking directorships; (2) looking at the network at the interindividual level, I will delineate an 'inner circle' of climate capitalism composed of a small number of key individuals who bind the field together (Sapinski 2015). A brief overview of inner circle members' corporate affiliations will provide an indication as to the eventual policy content of climate capitalism and thus whether it has any potential to avoid catastrophic climate change.

# Methodology

The study starts from a judgement sample of ten CEPGs that were selected on the basis of 1) their *transnational reach and mandate*, and 2) their *core function of climate capitalist KPM*. Table 1 provides basic information about the policy groups making up the sample.

# [Table 1. Climate and environmental policy groups]

The analysis looks at the embeddedness of these ten CEPGs within the network of interlocking directorships among the 500 largest transnational corporations (in terms of revenue, subsequently designated as the G500). Two corporations are said to 'interlock' when a member of the board of corporation A also sits on the board of corporation B. Considered independently, such links between corporations serve many purposes: evidence of firm reputation, information channels, and at times influence or control by one firm over another (Mizruchi 1996). Considered as a system, they form an extensive network that links most large corporations together in a dense web of relationships (Carroll 2010; Stokman et al. 1985), evidence that

corporations are embedded in and construct a network of social relations that reaches beyond the corporations themselves (de Graaff 2012). In its interorganizational aspect, this network provides corporate managers with insider information and thus plays a crucial role in coordinating corporate economic activity and business strategy (Carroll and Sapinski 2011; Domhoff 2014; Mintz and Schwartz 1985). As an interindividual network, it constitutes an extensive infrastructure on which can develop greater cohesion among the corporate elite, fundamental for organized political action (Burris 2005; Carroll and Sapinski 2011; Domhoff 2014; Murray 2013; Useem 1984). Additionally, interlocks between corporations and other organizations – in this case CEPGs – can be meaningfully analyzed as extended structures of corporate power (e.g. Burris 2008; Carroll and Beaton 2000; Carroll and Carson 2003; Carroll and Sapinski 2010). These linkages allow large firms and their owners and managers to project the power they derive from controlling the main centres of accumulation directly onto the political and cultural arenas (Carroll 2004). The SNA methodology employed in this paper allows me to map out some of these channels through which corporations exert structural power. In this way, it approaches power as a function of the whole system of relations between firms and of their relative positions within this structure (de Graaff 2011). Such a view of structural power underlies the analysis presented below.

I established the list of G500 corporations for 2010 on the basis of the Fortune Global 500 list published in June 2011 that ranks the largest corporations by revenue<sup>3</sup>. From this list, I constructed a stratified sample that includes the largest 400 industrial firms ranked by revenue and the largest 100 financial firms ranked by assets, so as to account for the underrepresentation of one or the other sector in the Fortune list. Constructing such a stratified sample is considered best practice in studies based on a list of the largest national or global corporations (e.g. Carroll 2010; Stokman et al. 1985)<sup>4</sup>. For each corporation, I then collected the list of all directors using the LexisNexis *Corporate Affiliations* database; Bureau van Dijk's *Mint Global* database was used to complete the information when necessary. For firms using the dual board system, both boards were merged and are considered as a single entity in the analyses, as per previous studies<sup>5</sup>.

<sup>&</sup>lt;sup>3</sup> Available online: http://fortune.com/global500/2011, consulted in October and November 2011.

<sup>&</sup>lt;sup>4</sup> This sampling strategy originally served to account for the fact that banks and other financial corporations generally declare lower revenues despite the fact that they control vast assets. Such a stratified sample thus avoids underrepresenting financial capital. In this case though, the situation was the opposite, as the 2010 G500 list included 391 industrial firms and 109 financial firms. To ensure comparability with previous studies, I nonetheless constructed a sample of 400 industrial and 100 financial firms.

<sup>&</sup>lt;sup>5</sup> For the purpose of the following analyses, directors of subsidiary firms who also are directors of one or more CEPG have been included as if they were board members of the parent corporation. This is to account for the fact that CEPGs' boards are at times staffed with lower-level managers and directors of subsidiaries of major corporations, who do not sit on the parent company's board but still represent it on CEPG boards. These linkages, despite the fact that they are not board interlocks in the classic sense, are meaningful and need to be considered in this study. They represent channels of communication between firms and CEPGs, and are indicative of an interest in influencing the climate capitalist project.

#### Action repertoire and discourse of climate capitalist policy groups

Beyond their common organizing and consensus-making roles discussed above, each CEPG specializes in particular aspects of climate capitalist KPM. Thus, all CEPGs lobby governments and intergovernmental organizations (IGOs) to a certain extent, yet the Business Council for Sustainable Energy (BCSE) and the International Emissions Trading Association (IETA) direct the greater part of their resources to such activities. Similarly, though all groups function as think tanks, the Global Climate Forum's (GCF) main activities consist in publishing reports and sponsoring conferences where different views about climate capitalist tools and strategies can be debated. For their part, the Climate Group, the World Business Council for Sustainable Development (WBCSD) and the UN Global Compact, by virtue of their high level networks, are able to work closely with governments and UN agencies to develop policies or economic arrangements supportive of climate capitalism. In this regard, the Climate Group works actively with subnational governments to deploy on-the-ground projects, such as installing energyefficient street lighting, that serve to create markets for so-called 'green' commodities. For its part, the Global Environmental Management Initiative (GEMI) focuses on its member corporations for whom it develops benchmarking tools against which to measure the extent to which they incorporate climate capitalist principles in their activities. Finally, the Copenhagen Climate Council (CCC), the UN Global Compact, and the WBCSD uniquely function as high level forums where the CEOs of the world's largest corporations collaborate together and interact with high-ranking politicians and civil servants to forge the main aspects of the climate capitalist project. Thus, CEPGs each have their own unique ways to conduct climate capitalist KPM, and in so doing carve out specific niche for themselves in the complex field of global climate politics.

Yet, despite their variegated action repertoires, all CEPGs present a similar discourse. The common narrative presented in their public material reflects very closely neoliberal ideals of reduced direct state intervention and voluntary corporate measures to address environmental issues<sup>6</sup>. This narrative goes as follows: 'business', once governments provide it with the appropriate 'playing field' – i.e. minimal global standardized regulations, substantial financial incentives, and, very importantly, the bureaucratic infrastructure required to administer carbon markets and other climate capitalist instruments – will use its special power of innovation to solve climate and sustainability issues by developing and applying techno-fixes that will provide new sources of profit and relaunch global economic growth. In terms of the actors involved in this tale, business represents the main, and often only, force of change; governments at best play a minor support role to corporate action, and at worst are a hindrance; NGOs, when present, can

<sup>&</sup>lt;sup>6</sup> This discourse is found in the public material disseminated by each CEPG, available on their respective websites; for a more detailed description of CEPGs' activities, see Sapinski (2015).

be junior partners whose role is not specifically defined; human beings are non-existent in themselves, and appear only under the form of a population to be employed or managed; similarly, ecosystems are sources of wealth in the form of natural capital and thus objects to be managed as well. This discourse is easily recognized as that of neoliberal environmentalism (see Bernstein 2002; Büscher and Fletcher 2015; Sullivan 2013) and rests heavily on a 'Promethean' view of technology as all powerful (see Dryzek 2013). In line with the neoliberal discourse (Castree 2010; Collard et al. 2015), it diverts attention from the substantial state intervention and investments required by climate capitalism by emphasizing the superior agency of 'business' and a reduced role of the state. All CEPGs subscribe to this discourse, with the exception of the Club of Rome. The Club of Rome instead supports neo-Keynesian measures relying on direct large-scale state intervention to stabilize the climate and address other environmental issues (see Custers 2010), although its discourse nonetheless stays within the parameters of elite management of the 'earth system'.

# Climate capitalism and the interlocks network of Global 500 corporations

Figure 1 is a graphic representation of the main component of the G500 interlocks network with embedded CEPGs; it includes 325 corporations and nine out of the ten original CEPGs. The corporations linking to CEPGs are indicated in black on the figure. The figure suggests that a sizeable proportion of these firms interested in climate capitalism are closely embedded within the dense core of the network. The other way around, most CEPGs have links to multiple G500 corporations. The proportion of G500 firms on each CEPG board varies: the BCSE has no links at all to G500 firms (and hence does not appear on Figure 1), while the Global Climate Forum, the Club of Rome, the GEMI, the Global Compact and the WBCSD have more than half their links to G500 firms. Thus, the largest corporations do play a role in the governance of most CEPGs, a crucial one in many cases. Conversely, many CEPGs link closely with corporations allegedly among the most powerful in the world.

# [Figure 1. CEPGs in the G500 interlocks network (main component)]

Table 2 compares the structural position of each CEPG within the interlocks network so as to assess how closely connected they are to core G500 corporations. *Centrality analysis* determines which nodes are the most important in a network. It can be measured in many ways, depending on what is considered to make a node structurally important in a given network (Borgatti et al. 2013:164; Freeman 1979). Table 2 lists the 35 most central CEPGs and firms in the network according to four different measures. The first one, *degree* centrality, simply represents the number of ties connecting a node to other nodes. The second one, *closeness* centrality, is calculated as the sum, for each node, of the number of steps – i.e. the number of intermediaries –

that connect it to every other node in the graph; it thus measures how easily on average one node can reach any other (Freeman 1979; Sabidussi 1966). The third measure, betweenness centrality, measures the extent to which each node mediates relations between other nodes. It calculates, for each node, the sum of the proportion of shortest distance paths between all pairs of nodes that pass through it (Freeman 1977, 1979). The values reported in Table 2 for these three measures are normalized according to network size, and thus vary between zero and one. Finally, beta centrality is a more complex metric that is based on the assumption that influential nodes are those linked to other central nodes. To account for this, it adjusts the centrality of each node proportionally to the centrality of directly adjacent nodes, themselves dependent on the centrality of nodes adjacent to them, and so on, recursively (Bonacich 1987). A parameter, beta, is used to weight the impact nodes located farther away will have on each node's centrality score. At a beta value of zero, beta centrality gives all the weight to local connections and the result is hence equivalent to degree centrality; at its maximum value<sup>7</sup>, it weights a node's centrality according to the centrality of nodes located at any distance, and thus gives greater weight to the global structure of the network<sup>8</sup>. For the case at hand, I am interested in the potential for the diffusion of climate capitalist ideas and practices among the most important corporations of the global political-economy. I hence seek to identify the nodes with the greatest potential to influence the debates around whether global capitalism should reorient along the lines of climate capitalism. Those would not necessarily be the ones with only the most direct contacts (degree), nor those with the best ability to reach across the network (closeness), nor those located in brokerage positions (betweenness), although each of these measures does capture one specific aspect of network influence. What I am rather seeking is a combination of local and global network influence, which is precisely what the beta centrality measure captures (Bonacich 1987:1174). So as to strike that balance between local and global influence, and to account for the smaller influence of a node on nodes located farther away, I assigned a beta parameter equal to half the maximum possible value.

# [Table 2. Measures of centrality for G500 firms and CEPGs]

The WBCSD registers as the most central CEPG according to all metrics (Table 2). This is because of its organizational structure, as a forum of CEOs or chairs of the largest corporations. Among its 69 directors, 42 head G500 corporations, thus providing the WBCSD with a unique reach and influence at the top, reflected in its extremely high centrality scores relative to other

<sup>&</sup>lt;sup>7</sup> The reciprocal of the largest eigenvalue of the network's adjacency matrix represents the limit at which the equation does not converge anymore. The maximum allowable value for Beta would thus be the closest possible to this value (Borgatti et al. 2013:171), approximated in the Ucinet software package by 0.995 times the reciprocal of the largest eigenvalue (Borgatti et al. 2002).

<sup>&</sup>lt;sup>8</sup> In which case it is equivalent to eigenvector centrality, as described by Bonacich (1972).; see Bonacich (1987), Borgatti et al. (2013:171).

nodes. Of the other CEPGs, the Global Compact, the IETA, and the Club of Rome consistently rank among the 35 most central nodes or close. Additionally, the CCC makes it to the 20<sup>th</sup> rank in closeness, and the Global Climate Forum appears at the 30<sup>th</sup> rank for betweenness. However, the other CEPGs rank much lower in terms of the different dimensions of centrality. Thus, it appears that several CEPGs beyond the Global Compact and the WBCSD, already known to be among the most influential global policy groups, occupy locations of potential influence among the G500, either in terms of the number of corporations they connect with, of their reach, of their capacity to broker between otherwise unconnected firms, or of how much they interlock with well-connected corporations. *These CEPGs are well positioned to play a crucial role in drawing the largest corporations into an eventual climate capitalist coalition*.

Looking at the issue from another angle, many corporations that manifest an interest in climate capitalism through their presence on policy boards also appear among the most powerful G500 firms. In all, the 69 G500 corporations represented on CEPG boards represent 13.8% of the total. However, among the 31 most powerful G500 corporations as measured by beta centrality, 16 have a presence on at least one policy board (indicated by stars in the table), making up 51.6% of this small group of corporations. Of course, the centrality of these firms is enhanced by the fact that they link to the most central CEPGs. To assess whether CEPGs do indeed link with the most powerful G500 corporations independently of their acting as cohesive hubs, I computed centrality scores for all nodes excluding CEPGs and tested if the difference in means between those firms that link to CEPGs and those that do not was significant for all centrality measures. The t-tests results are reported in Table 3. These show that the G500 firms that are represented on CEPG boards are significantly more central than those that are not, according to all metrics considered. Thus, independently of the inclusion of CEPGs in the network, firms interested in climate capitalism appear to occupy more central positions and wield above-average power within the network of interlocking directorates that ties together the select circle of G500 corporations.

# [Table 3. Difference in mean centrality for G500 firms involved in CEPG governance or not, various measures]

# The inner circle of climate capitalism

Several authors have underscored the importance of analyzing both the intercorporate and interindividual aspects of interlocks networks (Breiger 1974; Carroll 1984; Palmer 1987; Scott 1985). Here, I will approach the question of the position of the climate capitalist project within global capitalism from the angle of corporate directors, considered as members of the capitalist class participating in a system of class power (see Scott 1985).

Following Carroll and Sapinski's (2010) study of the global corporate-policy elite, I define the *climate capitalist corporate-policy elite* as those corporate directors who also sit on one or more CEPG boards, i.e. the individuals who create the actual network between policy groups and corporations (illustrated by the shaded area in Table 4). Within that broad climate capitalist elite, it is possible to delineate a more restricted group constituted by the most active members of the corporate elite and associated organic intellectuals. Borrowing from Useem (1984), I will identify this group as the *climate capitalist inner circle*. I include in this inner circle individuals who sit on two or more corporate boards and one or more CEPG board, thus capturing corporate interlockers who are active in the field of climate politics. To this group, I add directors of more than one CEPG who are not corporate directors. This latter category includes other important organic intellectuals who, despite not being included in the global corporate elite as such, nonetheless play an important role in developing its class interests and ideas as well as in creating greater connectivity among its members. The climate capitalist inner circle thus defined includes 21 corporate-policy interlockers and six policy-only interlockers, 27 individuals in total. Its members are listed in Table 5, and their interconnections are represented graphically in Figure 2.

> [*Table 4. CEPG and corporate board membership*] [*Figure 2. The inner circle of climate capitalism*]

We see from Table 5 that several important corporate directors are part of the climate capitalist elite and are thus active in constructing and building support for the project. Taking a broad view of the whole climate capitalist network, we find that out of the 405 CEPG directors, 79 are also G500 directors (19.3%). Looking specifically at the climate capitalist inner circle, 19 of its 27 members (70.4%) are G500 directors; moreover, 11 of these directors carry interlocks between G500 corporations, and thus are part of the most connected segment of the global corporate elite (see Useem 1984). Thus, *the climate capitalist inner circle includes several top capitalists, who may indeed be well positioned to influence the direction of global capitalism and an eventual transition to a new regime of capitalist accumulation.* These eleven people nevertheless represent a very small fraction of the 544 G500 interlockers (2.0%). Still, inner circle members do reach extensively beyond the climate capitalist inner circle, and the 11 G500 interlockers link directly with 244 other G500 interlockers (44.9%) with whom they share one or more board memberships, as illustrated in Figure 3. Nearly half of the most connected section of the global capitalist elite is within direct reach of climate capitalist inner circle members.

[Table 5. The inner circle of climate capitalism]

[Figure 3. Climate capitalist inner circle members among G500 interlockers]

#### Discussion

The stated goal of the climate capitalist project is to divert financial flows from the oil and coal sectors and GHG-emitting electricity production, and to redirect them to support the ecological modernization of production processes. In political-economic terms, this would involve implementing a new regime of capital accumulation, based on the partial internalization of certain environmental externalities, which following Newell and Paterson (2010) I have termed 'climate capitalism'. CEPGs play a crucial role to conceptualize this new regime and to mobilize the corporate elite in support of it. The analysis presented above (1) shows that climate capitalism is a project of a section of the global corporate elite that reaches out to a considerable segment of the corporate community; (2) sheds doubt on the claims of analyses presenting climate capitalism and carboniferous capitalism as elite projects with antagonistic goals.

The first thing the analysis demonstrates is that CEPGs are closely connected to the global corporate elite, at the highest level of organizational decision-making, the board of directors. As such, they function as vehicles of corporate elite power and hegemony, helping project its interests in the political and cultural realms (see Carroll 2004). Despite the fact that the intercorporate network creates a strong basis for cohesion and coordinated political action (Burris 2005; Murray 2013), it is nonetheless divided by major lines of fracture over strategy and tactics (Robinson and Harris 2000). This paper has focused on a cleavage that has become prominent during the last two decades, the division over the strategy to adopt in face of climate change. I charted the position of CEPGs within the interlocks network that connects the world's largest corporations together. Through this analysis, I explored where these organizations, whose work is to forge the climate capitalist project, stand in relation to the global corporate elite as a whole.

Starting from this line of fracture, the main question this paper addresses is whether the project of climate capitalism has the potential to become hegemonic among the global corporate elite. Analyzing the interlocks network along its interorganizational dimension shows that: (1) many CEPGs are well interlocked with the largest corporations, and (2) overall, CEPGs tend to interlock with the most central firms. These findings suggest that CEPGs are indeed well positioned to mobilize the largest and the most interlocked corporations around the project of climate capitalism. Considering the interlocks network as a channel for investment information (Mizruchi 1996), participation in CEPGs may increase firms' awareness of 'low carbon' profit opportunities. This would contribute to make firms more knowledgeable of the advantages of climate capitalism and thus deepen their commitment to the project. More importantly though, looking at the system of interlocks as a more diffuse vector of elite cohesion (Domhoff 2014) suggests that CEPGs may contribute to pulling together the corporate community around the

project of climate capitalism. They provide meeting points for corporate elites to discuss strategic responses to the climate crisis and forge consensual positions on the issue. They also provide services that are useful to corporations so that they can adopt internal policies in line with climate capitalism, which allows the integration of climate capitalism as a set of practices. Finally, the other way around, they serve to project corporate power onto the political and cultural fields (Carroll 2004), thereby fostering structural transformations that could help further climate capitalist hegemony.

Analyzing the network at the level of interindividual connections provides a complementary perspective. The analysis identified the most central individuals on whom depend most of the interlocks between corporations and CEPGs, and who together form a climate capitalist 'inner circle'. The inner circle includes several top capitalists, who may indeed be well positioned to influence the direction of global capitalism and an eventual transition to a new regime of accumulation. The extensive reach of these individuals among the global corporate elite again supports the argument of a potential for a broad climate capitalist coalition to form. However, analysis of the inner circle also fosters some questions about climate capitalism and its hegemonic potential. First, the small number of people at the core of the network outlines the fragility of this network, which could easily disorganize if one or more of these inner circle members would somehow withdraw from it<sup>9</sup>. Thus, the capacity of CEPGs and the climate capitalist elite to foster broad support for climate capitalism might be more limited than the interorganizational-level analysis suggests.

Second, shifting focus to inner circle members suggests that the interests these individuals are tied to are more compatible with a 'weak' version of climate capitalism involving a slow transition to sustainable energy production over the long term. Indeed, CEPGs also represent an outlet for the corporate elites participating in their governance to shape the project of climate capitalism according to their own beliefs and interests. Looking at the 11 G500 interlockers' affiliations listed in Table 5, we see that five of them are linked to major oil and nuclear energy corporations. The two most central individuals of the network, Anne Lauvergeon and Charles Holliday, are directors of oil majors Total and Shell, respectively. Lauvergeon is also CEO of nuclear power plant constructor Areva and a director of natural gas major GDF-Suez. Her compatriot Henri Proglio is CEO of Électricité de France (EDF) whose energy production depends in majority on nuclear power plants. Isidro Fainé, chair of Barcelona-based credit union La Caixa, represents his firm's investments on the board of Spanish oil major Repsol. Finally, Jorma Ollila is chairman of Shell. The fact that these key people are so closely tied to nonrenewable energy interests suggests that they may very well support a weak project of climate

<sup>&</sup>lt;sup>9</sup> See Heemskerk (2013).

capitalism founded on a slow transition to ecologically modernized production, which would allow for the short-term valorization of the large sums of capital invested in fossil fuel and nuclear energy production. This observation is consistent with existing literature (e.g. Derber 2010; Jones and Levy 2007; Lohmann 2011; Sapinski 2015) and indicates that despite their emergence within distinct sections of the corporate elite, climate capitalism and carboniferous capitalism may share similar long term goals.

### Conclusion

In conclusion, SNA allowed the analysis to move beyond considering organizations, firms, or CEPGs, in isolation and instead acknowledge the global corporate field as an ensemble of social relations. It thus moves beyond looking at whether individual firms adopt climate capitalist policies or not (e.g. Levy and Kolk 2002), or the degree to which each CEPG supports climate capitalism (e.g. Vormedal 2008). As a whole, the global corporate community is both cohesive and divided. SNA captures both aspects so as to reconceptualize the field as a site of struggle over corporate strategy in the face of the foreseen costs of runaway climate change.

Analysts of climate politics have been debating over whether the climate capitalist project might eventually get the support of a majority of the corporate community. The analysis presented here sheds light on this debate by showing that climate capitalist organizations occupy crucial positions within the G500 interlocks network. Nonetheless, CEPGs' reach rests on only a few individuals, meaning that the success of climate capitalism is far from assured. Furthermore, individual-level analysis brings out crucial questions about what type of climate capitalism might draw consensus among the corporate elite. Would a strong climate capitalism entailing a rapid regime shift toward the ecological modernization of production, including the reorganization of capital flows and thus of corporate profits, draw broad adhesion? Or would corporate support instead coalesce around a weak version which, while appearing to address the issue, would in practice only serve to maintain the current economic and financial structure, and thus amount to a continued denial of global warming? The evidence presented here suggests the latter, though further research would be required to delineate the actual content of the climate capitalist project and its meaning for individual members of the climate capitalist inner circle.

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Tables

# Table 1. Climate and environmental policy groups

Name <sup>a</sup>	Year est.	Headquarters	Main activities
Club of Rome	1972	Winterthur (Switzerland)	Global elite forum, think tank
Global Environmental Management Initiative (GEMI)	1990	Washington, DC (USA)	Industry support
Business Council for Sustainable Energy (BCSE)	1992	Washington, DC (USA)	Lobby group
European Business Council for a Sustainable Energy Future (e5)	1996	Karben (Germany)	Think tank, lobby group
World Business Council for Sustainable Development (WBCSD)	1996	Geneva (Switzerland)	Global elite forum, policy planning, think tank, lobby group
International Emissions Trading Association (IETA)	1999	Geneva (Switzerland)	Lobby group
United Nations Global Compact	2000	New York (USA)	Global elite forum, policy planning, think tank, lobby group
Global Climate Forum (GCF)	2001	Berlin (Germany)	Think tank
The Climate Group	2003	Woking (UK)	Policy planning, think tank, eco-modernization projects
Copenhagen Climate Council (CCC) <sup>b</sup>	2007	Copenhagen (Denmark)	Global elite forum, lobby group

<sup>a</sup> The US-based Center for Climate and Energy Solutions (C2ES, est. 1998) was included in the original CEPG sample. However, it does not interlock with any G500 firm and thus will not be discussed in the following analyses. <sup>b</sup> The Copenhagen Climate Council is now defunct.

Rank	Degree <sup>a, b</sup>	Degree <sup>a, b</sup> Closeness <sup>a, b</sup>		, b	Betweennes	Beta centrality <sup>a, b, c</sup>		
1	WBCSD	0.0843	WBCSD	0.17108	WBCSD	0.1266	WBCSD	8.157
2	Shell*	0.0392	Shell*	0.16526	Global Compact	0.0293	Shell*	4.125
3	Total*	0.0353	GE*	0.16289	Shell*	0.0291	Total*	4.008
4	Saint-Gobain	0.0314	Global Compact	0.16289	IETA	0.0242	Saint-Gobain	3.401
5	Global Compact	0.0314	BP*	0.16278	Club of Rome	0.0230	Global Compact	3.234
6	<b>BNP</b> Paribas	0.0294	Unilever*	0.16247	Alcoa*	0.0200	BNP Paribas	3.079
7	Deutsche Bank	0.0294	Deere*	0.16227	BP*	0.0200	GDF-Suez*	3.079
8	IBM	0.0294	Total*	0.16221	Alstom*	0.0198	Lafarge*	3.017
9	Alcoa*	0.0275	Vodafone*	0.16190	GE*	0.0180	Veolia*	3.003
10	Allianz	0.0275	Chevron*	0.16175	Allianz	0.0179	Siemens*	2.872
11	Astrazeneca	0.0275	Siemens*	0.16160	Total*	0.0176	Unilever*	2.823
12	GE*	0.0275	Alcoa*	0.16155	Siemens*	0.0171	GE*	2.729
13	Unilever*	0.0275	Veolia*	0.16144	Astrazeneca	0.0171	AXA	2.702
14	Veolia*	0.0275	ABB*	0.16104	Morgan Stanley*	0.0166	Vodafone*	2.698
15	Alstom*	0.0255	Alstom*	0.16063	Vodafone*	0.0160	Deutsche Bank	2.672
16	AXA	0.0255	Lafarge*	0.16063	IBM	0.0157	Alstom*	2.649
17	BP*	0.0255	GDF-Suez*	0.16038	UPS	0.0152	IBM	2.613
18	Dell	0.0255	Bank of America*	0.16003	Sony*	0.0152	EADS	2.529
19	EADS	0.0255	IETA	0.15992	Deere*	0.0151	Alcoa*	2.509
20	GDF-Suez*	0.0255	ccc	0.15933	Ericsson	0.0140	BP*	2.495
21	Lafarge*	0.0255	Novartis	0.15933	ccc	0.0135	Deere*	2.425
22	Siemens*	0.0255	IBM	0.15903	Swiss Re*	0.0133	Allianz	2.389
23	Air France-KLM	0.0235	Rio Tinto*	0.15903	Chevron*	0.0130	Dell	2.387
24	Deere*	0.0235	Saint-Gobain	0.15898	Unilever*	0.0129	Astrazeneca	2.328
25	E.ON	0.0235	Dell	0.15893	Veolia*	0.0128	Société Générale*	2.243
26	L'Oréal	0.0235	Nokia*	0.15848	Renault	0.0128	Air France-KLM	2.180
27	Metro	0.0235	Holcim*	0.15843	Toyota*	0.0127	L'Oréal	2.120
28	Procter & Gamble*	0.0235	Astrazeneca	0.15839	ABB*	0.0119	Chevron*	2.032
29	Renault	0.0235	Ericsson	0.15834	Pepsi Co.	0.0119	EDF*	2.005
30	RWE*	0.0235	Cigna*	0.15824	Global Cl. Forum	0.0112	Novartis	2.003
31	Société Générale*	0.0235	Michelin*	0.15809	Dell	0.0110	IETA	1.966
32	UPS	0.0235	Philips	0.15804	Pfizer	0.0110	Zurich Financial	1.966
33	Vodafone*	0.0235	BNP Paribas	0.15775	United Tech	0.0108	E.ON	1.954
34	Club of Rome	0.0235	EDF*	0.15770	Novartis	0.0105	Sanofi-Aventis	1.919
35	[8 firms ex-aequo]	0.0216	[EADS and Roche]	0.15765	Mitsui*	0.0102	Club of Rome	1.911
-	IETA	0.0216	Club of Rome	0.15712	Climate Group	0.0018	CCC	1.839
-	ccc	0.0196	Global Cl. Forum	0.15361	GEMI	0.0004	Global Cl. Forum	1.481
-	Global Cl. Forum	0.0196	GEMI	0.14693	e5	0.0000	GEMI	0.759
-	GEMI; Cl. Group	0.0098	Climate Group	0.14638			Climate Group	0.612
-	e5	0.0059	e5	0.14186			e5	0.330

Table 2. Measures of centrality for G500 firms and CEPGs

<sup>a</sup> CEPGs' names are in bold italics; stars indicate firms that directly interlock with at least one CEPG.
<sup>b</sup> Normalized scores.
<sup>c</sup> Beta=0.0517.

Centrality measure	Mean, firms on CEPG boards <sup>a</sup>	Mean, firms not on CEPG boardsª	ť	р	Eta <sup>2</sup>
Beta centrality	8.1 (7.1)	3.9 (5.4)	32.608	0.0001	0.061
Degree	4.9 (3.9)	2.5 (3.1)	32.378	0.0001	0.061
Betweenness	651.6 (925.3)	247.0 (545.3)	25.655	0.0001	0.049
Closeness	4711.0 (1218.4)	5394.8 (1406.1)	14.323	0.0001	0.028
N observations	69	431	500	500	500

Table 3. Difference in mean centrality for G500 firms involved in CEPG governance or not, various measures

<sup>a</sup> Standard deviation in brackets.
<sup>b</sup> All tests based on 10,000 permutations.

N corporate directorships	N C			
	0	1	2	Iotal
0	-	238	5	243
1	2503	140	1	2644
2	63	14	2	79
3	3	3	0	6
4	0	0	2	2
Total	2569	395	10	2974

Table 4. CEPG and corporate board memberships

Climate capitalist inner circle	CEPG boards	Corp. boards	G500 boards	CEPG boards	Corporate boards
G500 interlockers					
Anne Lauvergeon	2	4	3	Global Compact, WBCSD	Areva (CEO), GDF-Suez, Vodafone, Total
Charles O. Holliday, Jr.	2	4	3	Global Compact, WBCSD	Bank of America (chair), Deere & co., CH2MHill, Shell
Ernesto Zedillo	1	3	3	Club of Rome	Alcoa, Citigroup, Procter & Gamble
Henri Proglio	1	3	3	WBCSD	EDF (CEO), Véolia Envir. (chair), CNP Assurances
Isidro Faine Casas	1	3	2	Club of Rome	La Caixa (chair), Repsol, Telefónica
Fujio Cho	1	2	2	WBCSD	Totota (chair), Sony
Jorma Ollila	1	2	2	WBCSD	Nokia (chair), Shell (chair)
Matt Brittin	1	2	2	Climate Group	Google UK (managing director), J. Sainsbury
Michel Rollier	1	2	2	WBCSD	Michelin (CEO), Lafarge
Paul Polman	1	2	2	WBCSD	Unilever (CEO), Dow
Paul S. Otellini	1	2	2	CCC	Intel (CEO), Google
Other G500 directors					
James E. Rogers	2	2	1	CCC, WBCSD	Duke Energy (CEO), Cigna
Samuel A. DiPiazza	2	2	1	CCC, WBCSD	PricewaterhouseCoopers (CEO), DirecTV
Kasper Rorsted	1	2	1	WBCSD	Henkel (CEO), Danfoss
Lee A. McIntire	1	2	1	WBCSD	CH2MHill (president and CEO), BAE
Reto Ringger	1	2	1	Club of Rome	Globalance Bank (founder and CEO) SwissRe
Toshio Arima	1	2	1	Global Compact	FujiXerox (president), Kirin Holdings
Ingnacio Campino	2	1	1	e5, Global Climate Forum	Deutsche Telekom (rep. of the management board for sustainability and cl. change)
Other corporate interlocker	s				
Carsten Bjerg	1	2	0	ССС	Grundfos (CEO), Vestas Wind Systems
David Gregson	1	2	0	Climate Group	Lets Filofax (chair), Precise Media (chair)
Scott Sklar	1	2	0	BCSE	Stella Group (founder and CEO), SkyBuilt Power
Subhash Chandra	1	2	0	CCC	Essel (chair), Zee Entertainment
Policy group interlockers					
Bjorn Stigson	2	0	0	WBCSD (president), CCC	-
Crispin Tickell	2	0	0	CCC, Club of Rome	-
Frederick C. Dubee	2	0	0	Global Compact (senior advisor), Club of Rome	-
Georg Kell	2	0	0	Global Compact (executive director), CCC	-
Sebastian Gallehr	2	0	0	e5 (CEO), Global Climate Forum	-

Table 5.	The	inner	circle	of	climate	capitalism
10010 0.	1110		011 010	0,	omnato	oupituiloini

# Figures



Squares: CEPGs Diamonds: Financial corporations Triangles: Energy corporations Circles: Other corporations Black: Corporations linked to CEPGs Light gray: Other corporations

Figure 1. CEPGs in the G500 interlocks network (main component)



#### <u>Key</u>

Large dark gray circles: CEPGs Small black circles: Corporations Light gray squares: Corporate directors Gray squares: Policy group interlockers. Stars indicate G500 corporations.

Figure 2. The inner circle of climate capitalism



<u>Key</u> Black: Climate capitalist inner circle members Dark gray: G500 interlockers directly linked to inner circle members Light gray: Other G500 interlockers

Figure 3. Climate capitalist inner circle members among G500 interlockers