

Article

Copenhagen’s Struggle to Become the World’s First Carbon Neutral Capital: How Corporatist Power Beats Sustainability

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Abstract

Nordic cities are often perceived as frontrunners of urban sustainability and their planners increasingly embrace and combine environmentalist ideas with communicative planning approaches. We argue that how corporatist networks promote green growth strategies that can undermine sustainability targets is often overlooked. In this article, we examine how the City of Copenhagen is failing in its efforts to become the world’s first carbon-neutral capital by 2025 partly because of corporatist capture of the decarbonisation agenda. Taking a phronetic social science approach we shed light on the production of knowledge and counter-knowledge in planning conflicts over energy infrastructure, in particular the iconic €530 million Copenhill waste-to-energy plant in Denmark. On one side of the conflict was a green coalition that initially blocked the proposed energy megaplant to defend the city’s ambitious climate targets. On the other side was a corporatist coalition who subsequently succeeded in strong-arming the city council to accept the plant, even though that meant carbon emissions would increase significantly, instead of decreasing. We focus on this U-turn in the planning process as a case of dark planning and a knowledge co-creation fiasco. Our findings reveal how the sustainability concept can be utilised as an empty vessel to promote private sector export agendas. We suggest that environmentalist ideals may stand stronger in planning conflicts if they link up with a broader alternative socio-economic agenda capable of attracting coalition partners. The lesson to be learned for green coalitions is that it is crucial to combine expert, local, and political knowledge to be able to “read” the power configuration and develop strategic and tactical capacity to challenge dominant discourses.

Keywords

carbon emissions; climate change; collaborative planning; Copenhagen; corporatism; iconicity; sustainability transitions; urban energy

Issue

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1. Introduction

Cities around the world increasingly see themselves as key actors on the global climate emergency, and Nordic cities are often perceived as frontrunners of urban sustainability (Arcadis, 2018; Johnson, 2020; Simpson, 2018). This is linked to a tradition of co-creation, collaborative, and experimental approaches to planning and strong democratic governance (Eneqvist & Karvonen, 2021; Norström et al., 2020; Nyseth et al., 2019).

At a time when national governments are seen to be doing too little too late, cities spearhead significant reductions in carbon emissions and innovative climate solutions (Droege, 2011; Hansen, 2021; REN21, 2021). Transnational city networks like C40 promote best practices of urban decarbonisation and claim that green cities by their examples are inspiring national leaders in politics and business to act (Baeten, 2018; Busch et al., 2018). Accordingly, planners and planning schools are embracing environmentalist ideas, understood as the

nature conservation and climate mitigation part of the urban sustainability concept (Beatley & Wheeler, 2014; Campbell, 2016; Sager, 2015). Climate action plans and investments in energy plants are important tools in urban energy transitions. Brookes and Locatelli (2015, p. 57) note that energy plant megaprojects “are often seen as too late, too costly, and fail to provide for society the promised benefits.” The combination of the essential nature of energy plants and their poor delivery track record suggests a need for a better understanding of how and by whom knowledge is created and negotiated in energy planning.

Neoliberal ideas have shaped physical and socio-economic transformations of cities in advanced capitalist countries for decades (Fainstein, 2001; Harvey, 1989; Tarazona Vento, 2017). Broadly defined, neoliberalist doctrine advocates a private-sector solution to the city’s economic, environmental, and social problems (Sager, 2015). There is an ongoing debate in urban studies and planning on whether the neoliberal influence is nearly total or only partial. Some authors stress the hegemony of neoliberalism and its success in absorbing elements of alternative approaches (Béal, 2012; Clark, 2014). Other authors see a diverse picture of planning outcomes where neoliberal ideas are also challenged and defeated, sometimes by communicative planning ideals with an emphasis on participation and collaboration (Baeten, 2018; Sager, 2015). Our case study deals with conflicts in a planning process of urban energy infrastructure in a political context that is neither clear-cut neoliberal nor exclusively embedded in a Nordic welfare state setup with strong democratic governance. Defining features of the specific institutional context are, on the one hand, the dominance of public non-profit energy companies, municipal control over important aspects of energy planning, and strong state regulation of heat supply, which is far from neoliberal orthodoxy. Also, co-creation of knowledge between stakeholders is a key feature of the official decarbonisation strategy. On the other hand, the case suggests a failure in implementing communicative planning ideals, and murky, dark planning practices prevailing over transparent democratic decision-making.

By focusing on deficiencies in Copenhagen’s decarbonising efforts and failures in attempts to co-create knowledge this article shows how “green” growth strategies can undermine urban environmentalist policies. Our case study deals with an energy planning paradox which is that the City of Copenhagen, which at the same time as it set very ambitious climate targets—to become carbon neutral by 2025—also started building a waste-to-energy megaplant that multiplied emissions and undermined the strategic decarbonisation agenda. The research question is: *How could a corporatist coalition undermine Copenhagen’s plan to become carbon neutral by 2025?*

This article is based on a singular empirical case study of the planning of the Copenhill waste-to-energy plant. It shows how validity claims backed by a national corpo-

ratist coalition trumped the municipal planning department’s communicative and environmentalist approach and their validity claims based on local knowledge. The article concludes that corporatist power can capture sustainability strategies and that new approaches to sustainability coalition-building are needed. The article first provides a description of actors and the planning context, then moves on to describe the theoretical and methodological approach in this phronetic case study. Then, it follows a detailed analysis of four tension points in the planning process. Lastly, the conclusion sums up what can be learned from the case.

2. Actors and Planning Context: Waste-to-Energy and Decarbonisation Strategy

We use the term “corporatist coalition” to describe the network of powerful actors who successfully pushed for a U-turn in Copenhagen City Council’s (CCC) decision-making on approving the Copenhill project in 2012, after initially rejecting it in 2011. Corporatism (or neocorporatism) is often used to refer to policy regimes where strategic decision-making is dominated by tripartite power networks consisting of the state and the main interest organisations of capital and labour (Jessop, 2002). Corporatism manifests itself in both formal and informal power networks and may undermine collaborative planning and decision-making processes based on democratic dialogue. The key actors in the ad-hoc corporatist coalition set up in support of the waste-to-energy megaproject were the management of energy company Amager Resource Centre (ARC, previously operating under the name I/S Amagerforbrænding), the lord mayor of Copenhagen and a group of city councillors, the minister of finance, top trade union leaders, and a group of private businesses led by a subsidiary of Babcock-Wilcox, together with architectural firm Bjarke Ingels Group (BIG). The latter’s spectacular design proposal for an iconic energy plant with a ski slope on the rooftop, and a smokestack puffing giant smoke rings to raise climate awareness, played an important role in convincing decision-makers of the project’s potential for city branding, as we will show later. We use the term “green coalition” to describe the other side in the conflict. This uncoordinated group consisted of municipal planners and staff from the Technical and Environmental Administration (TEA) who were adhering to the principles of the city’s sustainability strategies of waste recycling and carbon neutrality. This coalition was also joined by the environment minister, the energy minister, a group of city councillors of fluctuating size, environmentalists (e.g., the Danish Society for Nature Conservation), critical media, and researchers who all argued for a small-scale, local waste-treatment solution to minimise carbon emissions. The green coalition initially convinced a city council majority to reject the Copenhill project, but their expertise became increasingly contested and, in the end, their knowledge claims were ignored.

2.1. Waste-to-Energy and District Heating in Copenhagen

Waste-to-energy became an important part of Danish urban energy systems after the 1973 oil crisis, which prompted a new national energy policy to stimulate local and municipal ownership of energy production to diversify supply (Rüdiger, 2007). Oil-fired power plants were phased out in less than five years and replaced by coal, natural gas, waste-to-energy, and later biomass, wind power, and other renewables. This was linked to an ambitious plan for creating a collective heat supply for all urban areas. As a result, the Danish capital Copenhagen (population within municipal borders—640,000; metropolitan area—2 million) today has one of the world's largest district heating systems, covering 98% of all households (HOFOR, 2022; Sovacool, 2013). In the metropolitan area's complex multi-energy system, advanced control functions allow renewable energy from wind, biomass, and solar to enter the system first, then waste-to-energy is used as a secondary source, while purely fossil-based energy is used as back-up, especially on very cold days. It is a political decision to consider energy from waste incineration, which releases both fossil and biogenic CO₂, as an intermediate between green and black energy (European Parliament and Council Directive of 19 November 2008, 2008). Four waste-to-energy plants feed into the metropolitan district heating network, all of them owned by different non-profit intermunicipal companies (Kohl, 2019). One of the plants is Copenhill, central to this case study, which in 2020 produced 1,658 GWh of energy and provided heat and electricity to more than a third of the city's households. The City of Copenhagen is the majority owner of the intermunicipal company ARC, which owns and operates the Copenhill plant. The legal form of an intermunicipal company like ARC is an *interessentskab* (partnership), a consensus-seeking structure with board representatives appointed proportionally among city councillors from the owner municipalities. Legally, the partnership is semi-autonomous in decision-making, but city councils control all their larger projects because a municipal guarantee is required for bank loans to the partnership.

2.2. Copenhagen's Climate Plan and Decarbonisation in Waste Incineration

In 2012, the City of Copenhagen adopted an ambitious climate action plan with the aim of becoming the world's first carbon-neutral capital by 2025. The plan was an updated version of an earlier vision, adopted already in 2009. The plan's concept of "CO₂ neutrality" is limited to functions that are directly influenced by the city government and does not directly involve the consumption-based carbon footprint of the municipality's citizens. The Copenhagen plan established climate action targets in four thematic areas: energy production, energy con-

sumption, mobility, and internal municipal procedures, all in all, aiming to cut 1.2 million tonnes of yearly CO₂ emissions by 2025 (The City of Copenhagen, 2012). The key component—accounting for 74% of reductions—was energy production, where new wind turbines, the conversion of a power plant from coal to biomass, and a new waste-to-energy plant, together with the separation of plastic from waste, were defined as main initiatives. The latter initiatives are linked to an already established long-term zero-waste strategy that aimed to reduce carbon emissions from waste incineration to zero. The plan identified the existing levels of waste incineration as a major obstacle to the decarbonisation strategy:

When plastic contained in waste is incinerated, it contributes to the energy supply but it also emits CO₂, because plastic is an oil-based product. If plastic content in waste remains unchanged, CO₂ emissions from waste incineration are expected to reach 100,000 tonnes by 2025. (The City of Copenhagen, 2012, p. 40)

To solve this problem, the plan established that parallel to removing plastic from the waste stream, waste incineration should be partly replaced by alternative methods of waste treatment, including biogas production. The plan dictated that the arrangements for a new waste-to-energy facility with significantly reduced incineration capacity "must therefore be assessed and subsequently constructed in partnership with the heating companies." (The City of Copenhagen, 2012, p. 37). The "heating companies" here refer specifically to ARC, which was at the same time drafting plans for the new Copenhill megaplant.

Carbon in waste can be almost completely combusted into CO₂, resulting in one tonne of CO₂ emissions per tonne of incinerated waste, making waste reduction and recycling effective methods of curbing carbon emissions. There are differences in the composition of waste, however, and it has been shown that the fossil carbon content emitted from sorted Danish waste can be as low as one-third (Bisinella et al., 2021). On the other hand, imported waste has "a significantly higher fossil share" because it contains more plastic (Danish Energy Agency, 2021, p. 8; see also Capion & Sørensen, 2021, p. 5). For this reason, municipal energy planners were explicitly opposed to the ideas of increasing incineration capacity or importing waste to fuel waste-to-energy plants in Copenhagen. As we will later show, this issue of incinerating less—or more—waste became the core of the conflict between the green coalition and the corporatist coalition. As of writing in 2022, no progress has been made in reducing carbon emissions from waste incineration. The purpose of Copenhagen's planned decarbonisation efforts, including the construction of the new waste-handling facility (Copenhill), was to avoid annual emissions of CO₂ increasing to 100,000 tonnes by 2025. Instead, new projections indicate that CO₂ emissions from Copenhill will reach 560,000 tonnes CO₂ per year

by 2025 (ARC, 2021; Bisinella et al., 2021). In other words, the realised Copenhill project alone will exceed the total projected worst-case CO₂ output from waste incineration by a factor of 5.6.

3. Theoretical and Methodological Framework

This article is inspired by the phronetic planning research tradition, which favours case studies and follows a tradition of power studies running from Machiavelli to Foucault and Bourdieu. Phronetic planning research works with four generic value-rational questions:

1. The planning context: Where are we going with planning?
2. The power analysis: Who gains and who loses, and by which mechanisms of power?
3. The critical judgement: Is this development desirable?
4. What should be done? Or what can actors learn with regards to future action and capacity building? (Flyvbjerg, 2002)

In their critique of communicative planning theory, Flyvbjerg as well as other authors argue that real planning processes are often far from communicative ideals. Real planning is not immune to dubious practices and manipulations by powerful actors that undermine transparency and democratic principles (Certomà, 2015; Huxley, 2018). “Dark planning” (Flyvbjerg & Richardson, 2002) is a strong metaphor for planning not done rationally nor according to democratic procedures; however, as an analytical concept it is a little vague. Flyvbjerg (2012) argues in favour of a case study methodology focusing on the identification of “tension points” as a way to investigate how complex power mechanisms influence or short-circuit the rationality and transparency of democratic planning. Tension points mark critical situations and stages, where power is exercised, often behind closed doors, in so-called dark planning processes; their key attributes are “that they involve dubious practices by key actors, [and] contestable knowledge used to make policy arguments” (Flyvbjerg et al., 2012, p. 288). This critical approach has been applied to notoriously underperforming megaprojects (Flyvbjerg et al., 2003).

According to Flyvbjerg (1998), a general asymmetry between rationality and power in modern democracy induces a basic weakness in planning. In dark planning cases planners can end up making plans that are not rational but reflect the wishes of the most powerful actors. In short: Power beats rationality. In our analysis (Section 4) of the tension points in the planning process of the Copenhill project, we are inspired by Flyvbjerg’s (1998) claims about the dynamic relationship between power and rationality in planning. An additional source of inspiration for our theoretical framework is the literature on neoliberalism and planning. Baeten (2018) argues that neoliberal planning as idea

and practice does not constitute a clear break with previous planning regimes. We argue that the Copenhill case reveals ad hoc corporatist power in an institutional context where energy supply is *not* privatised, but where private sector interest strongly influences public investments and strategies. Sager (2011) differentiates between 14 different neoliberal substrategies, of which city marketing is especially relevant for our case. State actors mobilise architecture as a way of making political-economic strategies meaningful, as shown by Sklair (2013), who argues that “iconicity”—understood as the fame, aesthetics and symbolic meaning of buildings and architects—has become a key component of urban megaprojects.

Three sources of empirical data were collected and analysed:

1. The main source was a huge variety of documents (Bowen, 2009), including official planning documents, recorded city council discussions, official minutes from meetings in the TEA and from ARC energy company board meetings, together with a self-created database of 123 news articles, many of them from financial media *Finans* and technical daily *Ingeniøren*. Furthermore, we got access to some 2,000 pages of internal municipal documents, including emails, from the TEA via freedom of information requests.
2. Interviews with key actors in the planning and decision-making process, including semi-structured in-person interviews with two former deputy mayors, and three former city councillors. These key decision makers represented three different centre-right, centrist, and centre-left political parties, and two of them also held board positions at ARC. Interviewees were selected because they were central in either the corporatist coalition or the green coalition, and their diverse voting patterns in the city council reflected different attitudes to the Copenhill project at different times. We also interviewed a lobbyist and an energy consultant close to the project. All seven interviews were conducted in 2018. For the interview guide, see Kohl (2019, p. 67). Interviewees were not anonymous. They were offered the opportunity to correct their quotes, and some did. Three persons declined our request for an interview.
3. Participant observation and informal “corridor talk” with politicians, planners, and municipal administrators who shared inside information or opinions with us outside the context of a formal interview (Kohl, 2019). Not surprisingly, we found that the informal corridor talks often differed from the statements the same politicians would allow quotation from.

Our positionality most likely influenced the data gathering described in 2 and 3. Both authors entered the

city council in 2014, one year after the city council had approved the Copenhill project. Neither of us was involved in the decision-making process, nor were we engaged in the public debate surrounding the planning conflict. Our research started in 2018. We likely had easier access to corridor talk and even research interview appointments because we were city council members at the time of conducting research. To not replicate views and opinions, we did not use members of our own party group as sources.

4. Energy Planning Failure: From Carbon Neutral Strategy to a Spectacular Megaplant and Increased Emissions

In the following section, we provide an overview of the planning process of the Copenhill energy plant, and then present findings related to four strategic tension points in the process and reflect on how they shed light on urban sustainability transitions. The four tension points are the city council majority's initial rejection of ARC's proposal for the Copenhill megaplant (Section 4.2), the prognosis war between ARC and TEA (Section 4.3), the corporatist coalition putting pressure on the city council (Section 4.4), and lastly, the post-factual Mayors' Deal, which marks a U-turn and a final political approval of the megaplant project (Section 4.5). We present the analysis of the case as a narrative chronology of key tension points to find a plausible explanation for the research question: *How could a corporatist coalition undermine Copenhagen's plan to become carbon neutral by 2025?*

4.1. Overview of the Planning Process

Copenhagen's district heating is supplied by different municipally owned energy companies running their own plants. One of the companies is ARC which specialises in waste-to-energy. All companies are largely autonomous in decision-making but always depend on the city council to approve a loan guarantee when capital is required for major investments. Planning proposals coming from the energy companies are analysed and commented on by the municipal planning department—the TEA—before being passed on to the city council. When ARC presented plans for the Copenhill megaplant to TEA in 2011, the key framework for TEA's assessment of the project was the city council's strategic plans for "zero waste" and carbon neutrality by 2025. Both plans established environmental targets that required less incineration of waste, contrary to ARC's proposal. In theory, the TEA is a more powerful actor than a company like ARC, because a proposed project that municipal planners label as economically or environmentally unsound is less likely to later receive political support from the city council. However, as we will show in this section, ARC succeeded in building a more powerful coalition that captured the sustainability agenda and pushed approval of the megaplant project through the city council. In this process, con-

frontation over what could be considered as relevant forms of knowledge played an important role. As we will show in Section 4.3, ARC first blocked TEA's attempts to co-create knowledge and then initiated a power struggle to replace the green coalition's expert knowledge regime with their own.

Timeline of key events in the planning process of Copenhill:

- 2008: ARC begins a project planning process aiming to replace an outdated, but functioning, waste-to-energy plant.
- 2009: CCC adopts a vision for becoming carbon neutral by 2025. Climate initiatives include carbon-neutral energy production in municipal energy companies like ARC.
- January 2011: ARC reveals the result of an architectural design contest for the new plant. The winner is rising star architect Bjarke Ingels, who then meets Copenhagen's lord mayor to present the spectacular design.
- March 2011: ARC presents technical plans and project budget for a megaplant to TEA.
- November 2011: TEA presents the result of their analysis of the Copenhill project. TEA recommends scrapping the project because it is far over capacity. If realised, the project will boost carbon emissions and jeopardise the carbon neutrality strategy and the city's finances.
- November 2011: The city council rejects ARC's request for a loan guarantee.
- December 2011: TEA invites ARC to a collaborative planning workshop. ARC rejects the invitation.
- December 2011: A "prognosis war" starts where ARC and TEA present conflicting predictions of the feasibility of the proposed plant. The environment minister intervenes in favour of TEA.
- January 2012: ARC announces a €135 million contract with a machine provider in the constituency of the finance minister. The finance minister intervenes in favour of ARC.
- January 2012: Top trade union leaders put pressure on the city council.
- Spring 2012: Secret negotiations between key local politicians.
- August 2012: Copenhagen's lord mayor announces a compromise that allows for the building of the megaplant but limits incineration capacity and fuels, so as to not jeopardise the city's carbon neutrality strategy. The city council approves a loan guarantee based on the new plan, and construction of Copenhill begins.
- 2016: Restrictions on incineration are removed bit by bit by the city council, citing Copenhill's poor economic performance. Annual CO₂ emissions from the plant are expected to reach 560,000 tonnes by 2025.

4.2. First Tension Point: A City Council Majority Rejects Amager Resource Centre's Proposal for the Copenhill Megaplant

By 2011, the municipal energy company ARC is headed by an energetic CEO, who begins positioning ARC centrally in a coalition that will soon include heavyweights from business and labour organisations, together with key politicians. With support from the city council-appointed chairman of ARC's board, former Deputy Mayor Mogens Lønborg, plans are being developed for building a new waste-to-energy plant that would increase existing incineration capacity by 40%. Lønborg later said ARC's expansionist plan fitted well with Copenhagen's overall strategy of creating growth and being on the map internationally, "because we put the level of ambition as high as we did: To build the world's best waste-incineration plant. Both in environmental standards and in energy efficiency" (Kohl, 2019, p. 41). However, the project's environmental focus—on minimising toxic emissions resulting from the combustion of waste—is not aligned with Copenhagen's target of eliminating carbon emissions.

In January 2011, ARC reveals the result of an architectural design contest. The winning proposal, called "Copenhill," comes from the architectural firm BIG and incorporates a ski slope on the rooftop. The design is based on Ingels' self-described architectural philosophy of "hedonistic sustainability," as an alternative to the "sad and depressing" kind of sustainability where people make sacrifices to their lifestyles (Garcia et al., 2021, p. 28; Ingels, 2009). BIG also hires a local rogue celebrity and self-taught designer to make the plant's smokestack puff enormous vapour rings for every tonne of CO₂ released from incinerated waste, as a gimmick to increase climate consciousness. Copenhagen's Lord Mayor Frank Jensen meets with architect Bjarke Ingels and becomes an enthusiastic supporter of the unconventional project. In this way, the Copenhill project becomes part of a global trend where iconic architecture plays an increasingly important role in urban megaprojects and where promoters skilfully use spectacular design to create political goodwill for so-called landmark projects (Andersen & Røe, 2017; Sklair, 2013). Urban elites, aspiring for their city to become a "world city," may think of the city as a node in a global network of relationships where linkage to the global economy is fundamental to ensuring sustained local development (del Cerro Santamaría, 2013; Sassen, 1991). The City of Copenhagen's ambition to be recognised as an "ecometropolis of the world," is, as noted by Simpson (2018, p. 33), closely linked to a Danish export agenda of providing sustainable urbanisation solutions in engineering and architecture, an agenda that has been very advantageous for firms like Ingels' BIG. This also helps explain why the idea of an iconic energy plant that could put Copenhagen "on the map" was attractive to local politicians focused on city marketing (see Sager, 2011).

In March 2011, the city council receives a presentation of an "architectural landmark" energy plant, which ARC claims would become a *fyrskib* (lightship) for waste-to-energy technology (TEA, 2011a, p. 3). ARC requests a loan guarantee of 3.95 billion DKK, some €530 million, of which the city council is to provide the larger part. TEA's planners are anything but happy about ARC's plans for boosting waste incineration capacity by 40% and during the following months they draft a highly critical motion on the project to the city council. TEA notes that ARC's plan to increase incineration capacity to 560,000 tonnes per year is far over the target and that the city council has previously asked ARC to investigate reducing actual capacity from the current 400,000 tonnes per year to as little as 240,000 tonnes per year when building a new plant. The rationality behind reducing capacity is that increased sorting and recycling are making overall waste amounts decrease. In short, there is not enough local waste to fuel such a huge plant.

TEA (2011b) also writes that ARC's "plans will unavoidably lead to a negative effect on the environment" because surplus capacity would most likely be used for ineffective incineration of biomass, or even waste import, which would seriously jeopardise Copenhagen's aim to become carbon-neutral by 2025. On top of that, TEA states that the Copenhill project will likely lead to long-term economic loss for the city and runs against both national and EU climate plans. TEA's arguments against the project are at this point rooted in sustainability rationality and in local knowledge of the effects of implementing the municipal zero waste strategy: The amount of unsorted waste destined for incineration is decreasing. ARC argue for the project by appealing to the perspective of city branding and the potential for exporting Danish private-sector technology. The CEO of ARC also claims that waste amounts are increasing. In ARC's perspective, waste is fuel, and more waste means potential for increasing ARC's production of heat and electricity.

In November 2011, key councillors from the city council's majority bloc meet to decide on the critical motion about the Copenhill project, drafted by TEA. TEA recommends that no loan guarantee should be provided. The majority bloc consists of four parties (social liberals, social democrats, left, and far-left) who together hold 41 out of 55 seats on the council, with the lord mayor's 17-member social democratic group being the largest. The lord mayor, who is fascinated by the project, faces a dilemma. Apparently, a majority on the city council opposes the megaplant. Also, at the national level, a political bloc consisting of the same four parties have only weeks earlier won parliamentary elections, and the new environment minister has already publicly aligned herself with TEA's position that Copenhill should not be built (Pedersen, 2011). The majority bloc strikes a compromise and agrees that they will not allow the city council to provide a loan guarantee for ARC's project for the time being. They also issue a public statement

echoing TEA's criticism of the proposed megaplant and declare that they will put the decision-making process on ice until new general guidelines on waste handling are issued by the government (TEA, 2011b). The legally non-binding declaration by the majority bloc marks the climax of the first tension point. The media picks up on the declaration and interprets it as a final decision. Environmentalist campaigners are jubilant and celebrate with champagne what they think is an irreversible "no" to the plant. "We thought we had won," a chief lobbyist of the Danish Society for Conservation of Nature says later (Kohl, 2019, p. 44). The new energy minister joins the environment minister in congratulating the city council for prioritising a sustainable solution. The green coalition—the TEA, environmentalists, critical media, researchers, the environment minister, the energy minister, and a group of city councillors—seemed to have prevailed.

4.3. Second Tension Point: The Prognosis War Between TEA and ARC

The second tension point occurs during the months of December 2011 and January 2012, when TEA and ARC engage in a heated debate about predictions of future amounts of waste in the city. We call this episode the "prognosis war" and it highlights the important role of knowledge as a contested resource in planning. This tension point shows that even with solid institutional backing from the city administration, collaborative planning approaches and attempts to co-create knowledge can fail when met with resolute opposition from powerful actors. The episode is also illustrative of Flyvbjerg's (1998) claim that rationality in planning is context-dependent, and that the context of rationality is power. More specifically, the confrontation between TEA and ARC over waste prognoses underlines the insight that "what is presented as reality by one set of experts is often a social construct that can be deconstructed and reconstructed by other experts" (Flyvbjerg et al., 2003, p. 61).

The apparent support from the city council majority and ministers in the national government is encouraging TEA to prepare plans for a new waste-management facility focusing on recycling, instead of incineration, according to the city's sustainability strategy. One of the first steps is to organise a workshop to co-create knowledge with important stakeholders. Co-creation of knowledge can be defined as "iterative and collaborative processes involving diverse types of expertise, knowledge and actors to produce context-specific knowledge and pathways towards a sustainable future" (Norström et al., 2020, p. 33). TEA's collaborative planning approach (Sager, 2015) corresponds to the principles established in the city's climate action plan (The City of Copenhagen, 2012, p. 37; see also Nyseth et al., 2019). Accordingly, in December 2011, TEA invites ARC representatives, together with environmentalists from the Danish Society for Conservation of Nature, private energy consultants,

and other stakeholders to jointly work out factual foundations for further planning and decision-making on the issue. Together with the invitation, TEA sends out a copy of a new report on the urban waste situation with a prognosis for decreasing amounts of waste in the future (Internal e-mail communication between TEA, Ea Energianalyse, and ARC, 2011, obtained by authors through freedom of information act requests). The report is prepared by a private consultancy, commissioned by TEA, and TEA invites workshop participants to comment on the findings.

On the day of the workshop, the invited representatives from ARC do not show up. The reason for ARC's boycott is explained a few days later. ARC's CEO writes that she finds the report "biased," "incompetent," of a "low standard" and not worthy of discussion (Internal e-mail communication between TEA, Ea Energianalyse, and ARC, 2011, obtained by authors through freedom of information act requests). ARC then goes on to hire their own private consultancy to produce a counter-report that gives radically different projections of increasing waste amounts thus supporting the business case for Copenhill, albeit at the cost of significantly increasing carbon emissions (Internal e-mail communication between TEA, Ea Energianalyse, and ARC, 2011, obtained by authors through freedom of information act requests). ARC's waste prognosis is based on the presumption that waste volume increases parallel with increases in GDP. TEA responds that ARC's model does not match actual developments in Copenhagen (Internal e-mail communication between TEA, Ea Energianalyse, and ARC, 2011, obtained by authors through freedom of information act requests). TEA's prognosis is based on detailed knowledge of the local situation, including demographic patterns, developments in waste sorting and handling, and levels of compliance with the city's zero waste vision. TEA also points to experiences from the City of Vienna, where increased sorting has drastically reduced the amount of waste for incineration. On the first working day of January 2012, the environment minister intervenes in the conflict by tasking her Environmental Protection Agency to arbitrate by ordering a third private consultancy report. This third report approves of TEA's arguments (Incentive Partners, 2012).

The "prognosis war" does not, however, end with a compromise or a peace deal. ARC simply ignores the report commissioned by the environment minister. Later developments show that ARC's predictions of increasing waste amounts did not materialise, because waste generation did not increase on par with economic growth, and initiatives from the city's zero waste plan further contributed to sorting and recycling, creating ever less need for incineration (Kohl, 2019, pp. 43–48). In the confrontation, ARC avoids a factual discussion of key planning premises and ignores TEA's claim to specific local knowledge. This leads to a power struggle between two different expert knowledge regimes.

4.4. Third Tension Point: The Corporatist Coalition Puts Pressure on the City Council

The two first tension points show that both coalitions present expert knowledge claims. The green coalition also presents local knowledge claims that are ignored by the other side. The third tension point shows that the corporatist coalition is strongest in political knowledge understood as the ability to play the power game. This tension point also reflects the fact that the tide is turning against the green coalition, even though the public and media are convinced that the Copenhill project is dead. For the public, it comes as a major surprise when ARC in January 2012, announces a contract worth more than one billion DKK (some €135 million) with machine provider Vølund, a Danish subsidiary of US thermal energy giant Babcock & Wilcox. The contract is Vølund's largest ever (Nielsen, 2016). According to media reports, Vølund has extraordinarily good connections to the upper echelons of the national government through Finance Minister Bjarne Corydon, a social democrat who is arguably the most powerful figure after the prime minister. Vølund is an important company in Corydon's constituency and a trade union leader from the firm has managed Corydon's recent election campaign (Nielsen, 2016). ARC takes advantage of this situation and secretly writes to finance minister Corydon, claiming there is a risk of "serious consequences" for Danish green technology export and loss of jobs worth 4,600 years of work, unless Corydon can convince the environment minister and Copenhagen's city council to support the Copenhill project (ARC, 2012).

A few days later, Corydon sends a letter to the CEO of Vølund, stating the government's support for the Copenhill project (Kohl, 2019, p. 68). The environment minister co-signs the letter but refuses to comment on her change of mind when asked by journalists. Only four years later does she claim in a Facebook post that she was "bullied" into doing it (Martini & Sandøe, 2016). Vølund immediately makes the letter public to put pressure on Copenhagen's city council. At the same time, the leaders of two of Denmark's most powerful trade union federations personally contact city councillors from the four-party majority bloc to persuade them to "make the right decision" on Copenhill, so an "international showcase" will not be lost (Simonsen, 2012).

Research on Danish power elite networks based on a relational view of power (Larsen, 2015) shows that well-connected top trade union leaders are among the single-most powerful individuals in the country. Top unionists form the inner circle of the power elite, together with top business leaders, while only a few politicians make their way into this group. Larsen (2015) mapped and ranked the 423 most powerful Danish individuals around the time of the planning conflict over Copenhill. According to this power elite ranking list, the leader of the metal workers federation, Thorkild Jensen, and the leader of the HK salaried workers federation, Kim

Simonsen, ranked 1st and 9th, respectively. These are the same two trade union leaders who put pressure on the city councillors.

Finance minister Corydon has not publicly commented on his intervention in the city's energy planning, an area not corresponding to his own ministry, but to the ministries of environment and energy. The exact scope of his intervention is also not clear to the authors of this article. Interestingly, all city councillors interviewed by us said that they were *not* put under pressure and that they did *not* discuss Copenhill with party colleagues in government. However, some of them say, in informal corridor talks, that they are sure other councillors were put under strong pressure from government ministers (Kohl, 2019, p. 50). Other sources point in the same direction. Vølund's CEO publicly thanked Corydon for making Copenhill happen (Mose & Hegelund, 2014). One social democrat MP even published a book, praising Corydon's efforts to ensure the valuable Copenhill contract ended up with Vølund (Dybvad, 2015, pp. 161–162).

4.5. Fourth Tension Point: The Post-Factual Mayors' Deal

After the corporatist coalition has put pressure on the city council majority bloc, a lengthy phase of negotiations held behind closed doors between the Lord Mayor and other key local politicians follows. ARC management also participates in some of the meetings. This negotiation process culminates in the summer of 2012 when the lord mayor presents a new political agreement, called the "Mayors' Deal" (CCC, 2012a). This new plan is presented as a compromise. On one hand, it implicitly approves ARC's plans to build a megaplant with a 40% increased incineration capacity. On the other hand, it does not allow ARC to use this increased capacity, it bans waste imports, and it restricts the use of other biomass fuels. Apparently, the compromise accommodates both sustainability concerns and the agenda of city branding, export promotion, and job creation. However, the deal completely undermines the business case for the megaplant. Former Deputy Mayor Lønborg, at that time serving as chairman of ARC's board, told us that he saw the sustainability restrictions on waste import as absurd: "It was an insanely suicidal thing to say: We don't want waste if it should become necessary. And at that time, I thought, well, well, reality will present itself someday" (Kohl, 2019, p. 53).

The Mayors' Deal is accepted by most city councillors who had previously opposed the megaplant project. Based on the deal, TEA drafts a new motion to grant a loan guarantee. The city council approves the motion at the end of 2012 with only one vote against it. TEA's motion states that the Copenhill project has a strong business case and will most likely contribute positively to the city's carbon neutrality plan. These surprising new claims are not backed up by new projections or calculations but simply refer back to the stated intent of the Mayors' Deal in a sort of post-factual retrospective

planning (Kohl, 2019, pp. 54–55). The only councillor voting against the loan guarantee adds a declaration to the protocol, stating:

This motion from the Technical and Environmental Administration is in complete conflict with the motion presented to the committee the first time the case was debated....One can only suspect that this motion is a politically ordered make-believe, rather than a factual evaluation of the case. (CCC, 2012b, Point 9)

Following the approval of the loan guarantee, construction work on Copenhill starts. In 2016, before the new megaplant is operational, the lord mayor announces an updated version of the Mayors' Deal that lifts the restrictions on using Copenhill's full incineration capacity and subsequently scraps the ban on imported waste. This is done because there is indeed too little waste in Copenhagen to power the costly, oversized plant. In effect, ARC's original project plan is realised. "Reality," as former Deputy Mayor Lønborg predicted, has presented itself. This U-turn suggests that rational arguments did not matter in the conflict over Copenhill. What mattered was who had the power to enforce their preferred version of reality, or as Flyvbjerg argues, power defines reality.

The result was that the original green coalition was dead. Instead, the corporatist coalition became the *new* "green coalition" with the Lord Mayor at its head, eager to promote Copenhill as an integral part of Copenhagen's sustainability concept that other cities could follow, including in the form of buying Danish waste-to-energy technology. As the Lord Mayor told a US media outlet: "I want my colleagues in other cities to know that waste incineration works, the technology is there. And it's very good for the economy" (Parker, 2018). Since 2019, ski enthusiasts have been plowing down the sloping roof of Copenhill, but another of the planned spectacular architectural features backfired—the extravaganza of puffing smoke rings to mark every tonne of CO₂ emission. BIG architects had announced they would "turn fiction into fact by transforming the smokestack, a symbol of the industrial era, into a communicator for the future" (Mairs, 2018), but when the celebrity designer working on the project was handed a life sentence for committing murder aboard his submarine, the smoke ring project was dropped in silence (Nelson, 2018). As of 2022, Copenhill still successfully attracts positive international media attention and business delegations from all over the world, and increasingly relies on imported waste and biomass.

5. Conclusion

The Copenhill case is an example of how "green growth" strategies can undermine urban sustainability policies. We showed how Copenhagen's city administration integrated communicative and environmentalist objectives

in a strategy to become the world's first carbon-neutral capital. However, a corporatist coalition successfully pushed for an iconic waste-to-energy megaplant project, with no regard for decarbonisation targets. A green coalition tried to stop the project, arguing against investing in increased waste incineration capacity at a time when waste amounts were decreasing because of greater recycling. In Section 2, we analysed the context of the case to answer the phronetic question: Where are we going with planning (Flyvbjerg, 2002)? We found that the Copenhill project contributes to a multiplication in CO₂ emissions from waste incineration, thereby seriously undermining Copenhagen's carbon neutrality targets. In Section 4, we answered a second phronetic question: Who gains and who loses, and by which mechanisms of power? We showed how the corporatist coalition overruled the green coalition by blocking attempts to co-create knowledge, rejecting independent waste prognoses, and strong-arming the city council. We shed light on the power struggle between two different expert knowledge regimes and showed that the green coalition was strong on local knowledge, while the corporatist coalition was strong on political knowledge. We identified strong elements of dark planning practices, including post-factual sustainability claims in planning documents, and closed decision-making processes. In the end, the concept of sustainability was utilised as an empty vessel to promote green city branding and particularistic business export agendas.

The Copenhill case highlights the importance of knowledge and counter-knowledge as a resource in planning. The case suggests that green actors such as sustainability planners, environmentalists, local politicians, and other knowledge actors, such as critical media and researchers, all have lessons to learn about planning in the face of power (see Forester, 1982). The first lesson is that to successfully challenge the adversary in a planning conflict (e.g., a corporatist coalition) it is essential to understand their strengths and claims to legitimacy. In this case, the corporatist coalition presented a seductive project with an iconic design that promised benefits like city branding, and a ski slope open to the public. The corporatist coalition also linked the objective of promoting green technology exports with job creation, and successfully enlisted support from a traditional tripartite elite of top trade union leaders, top political actors from state and city, and private sector figures.

The second lesson is that green actors, based on their reading of the power configuration, should develop tactical and strategic capacity to openly challenge the discourses of the adversary. This includes the ability to mobilise support for planners and other knowledge creators when attacked. Lack of transparency in planning and decision-making processes should be communicated to the public and other green stakeholders. Expert knowledge must be combined with other forms of knowledge, especially political knowledge. It is also important to argue convincingly for the advantages of alternative

plans. If green actors in the Copenhill case had better developed and communicated proposals linked to job creation—e.g., recycling initiatives, community engagement, and a broader socio-economic agenda—they might have been able to attract important new coalition partners from trade unions, the private sector, and the public. This in turn could give the sustainability agenda a stronger position in planning conflicts. Future sustainability action might also benefit from engagement with the concept of energy democracy (Paul, 2018; Szulecki & Overland, 2020) understood not only in terms of decarbonisation but also as a process of energy transition driven forward by popular participation.

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Conflict of Interests

Ulrik Kohl served as a member of ARC's board from 2018 to 2019 and was paid around €250 per month. This was in no way related to the research presented here.

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