

## **The Green Decarbonised State and Industrial Governance: How to render transformation of the energy-intensive industry possible?**

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### **Abstract**

In the context of climate change politics and governance, research on the state in environmental politics needs to develop an account of industrial policy and how industry can be governed in response to decarbonisation efforts. In this paper, we further conceptualise a Green Decarbonised State (Bäckstrand and Kronsell 2015; Hildingsson and Khan 2015) and explore its potential role in governing industrial decarbonisation. The state retains the authority and capacity to access diverse steering mechanisms to achieve climate and sustainability objectives (Bäckstrand et al. 2010) and are capable of orchestrating decarbonization of societal structures in key sectors in the carbon economy (Hildingsson and Khan 2015). Advanced welfare states have been particularly successful, due to their capacity to reconcile different interests in society, by remediating social and environmental costs that arise from the externalities of industrial production (Gough and Meadowcroft 2011). At the same time, the welfare state is still inherently dependent on industrial development and economic growth.

Exploring the new politics of climate change after the Paris agreement, we focus in this paper on the energy-intensive natural resource-based industry (ENRI), associated with intense energy consumption and high carbon emissions. In perspective of the long-term climate policy objectives, these industries are key targets for climate mitigation efforts and decarbonisation strategies. Industry accounts for 30 % of global emissions of greenhouse gases of which ENRI sectors including iron and steel, pulp and paper, cement and chemical industries are responsible for nearly half (IPCC 2014). Decarbonizing ENRIs will expose policy makers to a major dilemma; while industrial decarbonisation is crucial for climate policy, such sectors represent key export industries and large employers fundamental to national economies. In comparison to many other industrial sectors, they are well-integrated into the global economy and highly dependent on retaining their international competitiveness. Thus, prevailing strategies by state authorities have been to protect these industries from market competition and of late to rely on market forces in anticipation of the risk of carbon leakage (despite weak support for such real effects; see e.g. IPCC 2014). However, market-based policies and market-liberal norms of cost-efficiency are largely insufficient to incentivize long-term decarbonisation strategies and transformative change in these industries (Henriksson et al 2014; Hildingsson and Khan 2015).

In this paper we discuss how a green decarbonised state can govern ENRIs and asks how to render transformative change in and decarbonisation of energy-intensive natural resource-based industries possible. In conceptualising a green, decarbonising state (Hildingsson and Khan 2015), we take our departure in theories on the green state that, however, lack a proper account of industrial policy and rather tend to relate industries to the problematic economic imperative of the state (Eckersley 2004) referring to industrial sustainability innovation as 'greenwash', 'weak' ecological modernisation (Christoff 2005), or simply attempts to sustain the unsustainable (Blühdorn). Therefore our analysis is further informed by insights from innovation studies, including transitions theory that consider established industries as part of incumbent regimes resisting change and sees innovation as possible through 'niche' development (see e.g. Grin et al 2011), ecological modernisation theory emphasising the potential for policy-makers to spur industrial renewal and competitiveness through innovation policy (e.g. Jänicke and Jakob 2006), as well as Mazzucato's (2013) account of the entrepreneurial state. While these approaches help understand central elements and drivers of innovation processes in manufacturing, clean tech and energy industries, they fail to provide a sufficient understanding of the conditions for innovation and transformative change in process-based industries and, thus, a proper account of the kind of industrial governance that might be needed to render decarbonisation of energy-intensive natural resource-based industries possible.