

The impacts of climate change mitigation on work for the Austrian economy¹

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To mitigate the high risk of climate change getting out of control and Earth becoming uninhabitable for most life forms, including human beings (Steffen et al., 2018), 195 nations have pledged under the Paris Agreement to keep global average temperature increase well below 2°C, and ideally at 1.5°C above pre-industrial levels (UNFCCC, 2015). Climate change mitigation in line with accordingly remaining carbon budgets means for industrialised countries to substantially reduce greenhouse gas (GHG) emissions to *absolute zero*, to rapidly phase out the use of fossil fuels, and to achieve a structural transformation towards a post-fossil economy based entirely on renewable energy (RE) – within the short timeframe of around 15 years (Allwood et al., 2019; Anderson et al., 2020; Jackson et al., 2019). This also means full decarbonisation must be achieved without relying on ‘overshoot’ scenarios and contested ‘negative emissions technologies’ (and associated *net zero* targets). These technologies are unproven, do not currently exist at scale and won’t do so in the short timeframe that is decisive, and thus pose a major risk (IPCC, 2018; Minx et al., 2018; Nemet et al., 2018). The focus must therefore be on planning without them and on pursuing realistic, reliable mitigation strategies in the short-term based on existing technologies (Allwood et al., 2019; Anderson & Peters, 2016; Larkin et al., 2018).

With this end in mind, serious climate change mitigation entails profound implications for all sectors of modern industrial economies (Anderson et al., 2020; IPCC, 2018), with major consequences specifically for work and employment across all sectors: Due to RE having different properties than fossil fuels, the energy basis of all economic activity must be completely reorganised, a whole range of industries and associated jobs (e.g., in fossil fuel extraction and energy-intensive production) has to be reduced or entirely phased out, while certain kinds of work need to be prioritised given their essential importance for society. This is complicated by one aspect in particular: modern industrial societies, welfare states and their growth economies are not only structurally dependent on fossil fuels – but also centred and dependent on work. The resulting conflict between work and the environment, the objection that any measures for emissions reductions must be balanced against concerns about jobs, is one of the main reasons why effective climate protection has regularly been obstructed (Hoffmann & Paulsen, 2020).

Despite the centrality of work for industrialised countries, these impacts of climate change mitigation on work have not been comprehensively studied or sufficiently understood yet. With “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs” (UNFCCC, 2015, p. 2) the Paris Agreement summarises the debate’s main focus. Research in this area is usually primarily concerned with job gains and job creation through ‘green jobs’, e.g. in RE production or retrofitting of buildings (e.g., European Commission, 2019). Potential job losses are discussed as part of a ‘just transition’ in selected, obvious sectors (e.g., in coal mining) and usually remain on the surface (Snell, 2018). Aside from a few exceptions, there has been little empirical research on exactly which areas of work are susceptible to impact from climate change mitigation in which ways, and what this implies for work-centred societies, as well as for the relevant scientific debates.

¹ Dieser Beitrag ist auf Englisch verfasst weil er auf einem englischsprachigen Paper basiert. Der Vortrag kann problemlos auch auf Deutsch gehalten werden.

This is what this paper aims at investigating. We conduct a sectoral analysis of the impacts of climate change mitigation on work across all branches of economic activity, in terms of carbon emissions reduction towards absolute zero, full substitution of fossil fuels through RE, the jobs accordingly affected and differences regarding their societal importance. We draw on secondary data using the Austrian national economy as a case study of an average modern industrial economy and ‘developed country’ signatory to the Paris Agreement. As an exploratory study, the aim is to identify areas in which work is inconsistent with serious climate change mitigation and thus unsustainable, where it needs restructuring, where specific challenges and dependencies are, and what follows for industrial work-centred society. Thus, we aim at gaining understanding of key aspects and wider implications of the pending structural transformation of industrial economies. The following three research questions are addressed:

- (1) Which fields of work are susceptible to impact from climate change mitigation in the short term?
- (2) Which fields of work can/cannot be reorganised on the basis of existing renewable energy technologies?
- (3) What is the susceptibility of fields of work that are essential for society to fulfil its needs and functions?

In this contribution, we first situate the study in the relevant field of research on work and climate change (mitigation) or sustainability more broadly. We then introduce our mixed methods approach (including secondary data analysis, expert interviews and the study of government-issued documents), before presenting the results, discussing their implications, and drawing conclusions.

Preliminary findings include that the impacts of climate change mitigation on work are far more substantial than the literature usually suggests. Significant reductions of work across all sectors and its structural reorganisation based on an altered energy basis are required. Yet, potential for deployment of renewable energy technologies is currently not given for many fields of work that are dependent on fossil fuels. While the category of ‘essential work’ further indicates the kinds of work that may be prioritised in transformation processes, particularly problematic are those deemed both essential for society and at the same time incompatible with climate change mitigation.

Our study provides an initial empirical basis for substantiated differentiation of kinds of work regarding these key aspects of climate change mitigation and structural transformation. It also points to the need for institutions to address these challenges and the problematic ways in which work is organised and held sacrosanct in modern society.

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