

Consultation response: 'Industrial Heat Recovery Support Programme: Programme design and evidence collection'

Isabella Neuweg and Misato Sato

January 2018

The Centre for Climate Change Economics and Policy (CCCEP) was established in 2008 to advance public and private action on climate change through rigorous, innovative research. The Centre is hosted jointly by the University of Leeds and the London School of Economics and Political Science. It is funded by the UK Economic and Social Research Council. More information about the ESRC Centre for Climate Change Economics and Policy can be found at: www.cccep.ac.uk

The Grantham Research Institute on Climate Change and the Environment was established in 2008 at the London School of Economics and Political Science. The Institute brings together international expertise on economics, as well as finance, geography, the environment, international development and political economy to establish a world-leading centre for policy-relevant research, teaching and training in climate change and the environment. It is funded by the Grantham Foundation for the Protection of the Environment, which also funds the Grantham Institute for Climate Change at Imperial College London. More information about the Grantham Research Institute can be found at: www.lse.ac.uk/grantham

This paper is intended to inform decision-makers in the public, private and third sectors. The views expressed represent those of the authors and do not necessarily represent those of the host institutions or funders.

Consultation Response: 'Industrial Heat Recovery Support Programme: Programme design and evidence collection'

Introduction: what is this consultation about?

The UK government plans to introduce the Industrial Heat Recovery Support programme to increase industry confidence in identifying and investing in opportunities for recovering and reusing waste heat from industrial processes and to increase the deployment of industrial heat recovery technologies. Heat that is generated in or for an industrial process can be recovered, and reused in a number of ways, including within the same industrial facility for heating or cooling, by another end-user (for example via a heat network), or by converting the waste heat to power (Department for Business, Energy & Industrial Strategy [BEIS], 2017). Given that this heat would otherwise be lost, collecting and reusing it increases efficiency and can lead to fossil fuel, carbon and cost savings. According to the Carbon Trust (2012), UK industry uses 40% of energy directly in process heating, and between 5% and 15% of this energy could be reused, which would result in significant cost savings.

In October 2017 the Department for Business, Energy & Industrial Strategy announced its consultation on the Industrial Heat Recovery Support programme. This paper sets out a response to a selected question on overcoming potential barriers to the uptake of recoverable heat technologies in industry. It has been prepared by the ESRC Centre for Climate Change Economics and Policy and the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science. This consultation response was first submitted via the CitizenSpace online platform in December 2017.

Response

Q6. Do the barriers and enablers identified above relate to a situation you are familiar with? Are there other barriers that we have not identified?

The Industrial Heat Recovery Support Programme aims to overcome knowledge, information, technology and financial barriers to help increase the deployment of industrial heat recovery technologies (BEIS, 2017). It plans to do so by providing support through feasibility studies as well as financial incentives (ibid).

Regarding the financial incentives, one aspect to take into account is that heat installations covered under the European Union Emissions Trading Scheme (EU ETS) receive free allocation of emission permits.

While optimising industrial plants' heat recovery is beneficial for reducing overall UK emissions, the private benefits for industrial plants to increase heat recovery to the socially optimal level may not be large enough without additional policy support, relative to the costs of increasing heat recovery. Thus, policy incentives are likely to be needed to bring about *additional* heat recovery by industrial plants that exceeds the conventional levels of heat recovery.

Why should additional heat be compensated? In industrial production heat represents a by-product. However, this by-product has the potential to generate emissions savings by displacing heat generation through gas or electricity. In other words, reusing industrial by-product heat displaces or provides the equivalent service to conventional heat generation through gas or electricity, thus reducing UK emissions overall.

Under the EU ETS, heat installations receive free allocation of allowances, not on the grounds of carbon leakage, but because of distributional concerns (i.e. to avoid carbon costs being passed

through to heat prices). This policy choice to provide heat plants with free allowances triggers the need for additional intervention to level the playing field between all heat providers.

In a recent academic analysis, we showed that in order for industrial by-product heat to be able to compete in the market with other producers, any *additional* output of by-products should receive free allowances. The level of free allocation should be based on the *additional* heat output, multiplied by the benchmark used for calculating the free allocation of the competing plants, which in the case of heat is the heat benchmark (Zipper et al., 2017). If industrial by-product heat does not receive equivalent compensation (free allocation) for producing additional heat, then the industrial plants will face unfair competition from heat installations receiving free allocation; thus they will face reduced incentives to capture and reuse heat (whether onsite or offsite) relative to the socially optimal level.

The Industrial Heat Recovery Support Programme therefore should take into consideration the interactions with existing policies on heat such as the EU ETS and ensure a level playing field with non-industrial heat generators. Of course, if free allocation were removed from non-industrial heat plants, then there would be no need to compensate industrial plants for producing additional heat.

References

Carbon Trust (2012) *Process heating: Introducing energy saving measures for business. Technology Overview.*

London: Carbon Trust. Available at:

https://www.carbontrust.com/media/147550/ctv064_process_heating.pdf

Department for Business, Energy & Industrial Strategy [BEIS] (2017) *Industrial Heat Recovery Support Programme: Programme design and evidence collection.* London: BEIS. Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/651125/IHRS_Consultation_Document-October_2017.pdf

Zipperer V, Sato M, Neuhoff K (2017) *Benchmarks for emissions trading – general principles for emissions scope.* Grantham Research Institute on Climate Change and the Environment Working Paper no. 287, Centre for Climate Change Economics and Policy Working Paper no. 321. Available at:

<http://www.lse.ac.uk/GranthamInstitute/publication/benchmarks-emissions-trading-general-principles-emissions-scope/>