



## FSR Climate Annual Conference 2020

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### Session on Environmental Taxation

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#### *The impact of carbon prices on optimal renewable energy support*

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#### **ABSTRACT**

*This paper examines how optimal renewable energy (RE) support policies need to be adjusted to account for carbon prices. We show that changing carbon prices require adjusting RE production subsidies due to two different motives: First, RE premiums need to be reduced to reflect the carbon value embedded in the market price. Second, RE premiums and feed-in tariffs need to be adjusted once a fuel switch away from coal towards gas power occurs. This adjustment is necessary to account for changes in the marginal external benefit of RE. We empirically estimate optimal RE subsidies and their adjustments due to a fuel switch for the case of the UK. Whereas optimal RE premiums decrease by more than half due to the carbon value embedded in the market price, the necessary adjustment of subsidies due to a fuel switch is empirically rather small. Finally, a fuel switch increases solar-induced abatement, whereas it decreases wind-induced abatement. Yet, the differentiation of RE subsidies between wind and solar power is modest.*