Specifying An Efficient Renewable Energy Feed-in Tariff

Niall Farrell[*†], Mel Devine[‡], James Gleeson[‡], William Lee[‡], Seán Lyons[*]

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Abstract

In many jurisdictions, a Feed-in Tariff (FiT) has become a favoured policy option to support renewable energy deployment. Such a tariff may take many forms, with remuneration offered often incorporating uncertain market prices alongside a guaranteed payment. This paper provides a tool to incorporate both of these certain and uncertain elements in efficient FiT pricing. This model characterises the strategic interaction of policymakers and investors whilst applying stochasic price process modelling and option pricing theory to incorporate uncertain market prices in efficient FiT price formulation. Partial derivatives characterise sensitivity to ex-post changes in market conditions. Numerical simulations demonstrate how the derived formulae may be applied in a stylised Irish case study, with a scenario analysis allowing for relative tariff sensitivities under different market situations to be quantified.

Keywords: Renewable Energy, Feed-in Tariff, Option Pricing, Efficient Policy Design

[*]Economic and Social Research Institute, Whitaker Square, Sir John Rogerson's Quay, Dublin, Ireland and Department of Economics, Trinity College, Dublin, Ireland.

[†]Corresponding Author: niall.farrell@esri.ie

[‡]MACSI, Department of Mathematics and Statistics, University of Limerick, Limerick, Ireland