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Energy subsidies at times of economic crisis:

A comparative study and scenario analysis of Italy and Spain

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Generous subsidies for renewables, particularly for solar photovoltaics (PV), led to a sudden upsurge in investments in renewable energy technologies such as onshore wind and solar PV in Spain and Italy between 2005 and 2012. During the same period, however, the Global Financial Crisis led to massive structural fiscal deficits, which ultimately resulted in both countries curtailing their renewable support. Retroactive policies in Spain, in the form of tariff reductions that were earlier promised, setting caps on eligible output or reduction in the duration of support undermined investor confidence and has cast doubt on Spain's ability to meet its 2020 climate and renewable energy targets. Italy's economic situation has been long-lasting and deeper than that of Spain and it has also withdrawn some promised subsidies, but Italy is still expected to meet both its climate and renewables targets by 2020 based on its current trajectory and existing policies.

We survey the evolution of energy policies in Italy and Spain, and discuss the impacts of these policies on low-carbon investments in the electricity sector before, during and immediately after the global financial crisis of 2008-2009. We also present a scenario analysis that contrasts alternative futures post-2020 using a combination of high/low renewable support and high/low EU carbon price as the basis for our four scenarios. More specifically, renewables support can remain at current levels (essentially zero) or be revived to recent historical levels and carbon prices can stay at current low levels (€5/t CO_2) or rise to levels needed to accomplish the proposed 40% EU 2030 reduction target (assumed to be greater than €50/t CO_2). We then identify the low-carbon technology options that emerge as cost-competitive with fossil fuel technologies (coal and natural gas) under each scenario.

In our investigation of past national energy policies, we find that neither Italy nor Spain linked their renewable support tariffs to the underlying costs of the technologies. The absence of any sort of linkage led to spiraling support costs for solar PV as panel costs fell dramatically over 2007-2010, while tariffs remained high, attracting investors from both households and solar farms attracted by the prospects of high returns. Subsequently, in an

attempt to reduce the rising costs of renewable support, policies were reformed which virtually halted any further growth in capacity of renewables in either country. Support costs were reduced not just by halting all future investments but also by reneging on promises to existing recipients, which has led to a series of 'solar claims' against Spain, Italy and other countries that backtracked on promised subsidies.

Our scenario analysis looks to the post-2020 period and the effect that carbon prices and technology support has on the potential for renewables to be cost-competitive. It should be unsurprising that with either continued renewables support (which seems unlikely for Spain or Italy in the foreseeable future) or with a significant carbon price (>€50/tCO_2), that many renewables technologies will be cost-competitive. The more interesting finding is that even with no government support and continued low carbon prices (~€5/tCO_2), we find that in large parts of Spain, solar PV and onshore wind will be cost-competitive, whereas concentrated solar power (CSP) and onshore wind will require at least either a sustained renewable support regime or a high carbon price to become cost competitive. In Italy, solar PV becomes cost competitive in the low-carbon, low-renewable support scenario except when fossil fuel prices are unusually low. By 2030, there would be large-scale penetration of onshore wind and geothermal in Italy if there is either a high-carbon price or a high renewable support regime or both. In general, if the current levels of carbon price were to exist post-2020, both Italy and Spain would find it rather difficult to increase the penetration of renewables in their electricity mix.

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