
Reducing the cost of financing renewables in Europe

A proposal for an EU Renewable Energy Cost Reduction Facility ("RES-CRF")

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A proposal for an EU Renewable Energy Cost Reduction Facility ("RES-CRF")

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Study on behalf of Agora Energiewende

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Preface

Dear Reader,

Investments into renewable energies are highly capital intensive. Differences in costs of capital for renewable energy investments translate into significant differences in the revenues needed for a renewable energy project to be financially viable. In effect, it is significantly more expensive for consumers and taxpayers in some European countries to build new wind or solar power plants than it is in others – even if the weather conditions are equal.

Equalising the costs of capital for investments in renewables throughout the EU could generate significant savings to consumers and taxpayers. It would also allow for a broader sharing of the social, economic and health benefits of renewable energy investments, and would particularly benefit EU Member States with lower than average per capita GDP. The economic case for renewable energy investments will gain importance in the 2020–2030 decade, when the EU will move from nationally binding renewable

energy targets to a collectively binding EU-level target that is based on (voluntary) national contributions.

The EU Renewable Energy Cost Reduction Facility developed in this paper would offer member states with high costs of capital the opportunity to develop their renewable energy sources at costs currently enjoyed for renewable investments in Germany or France. If realised, it could be a prime example of how European-level action could add value to national energy policy-making.

We offer this idea as input to the ongoing discussion on the post 2020 EU framework for renewable energy. I hope you enjoy the read! Comments are very welcome.

Yours sincerely,
Patrick Graichen
Executive Director of Agora Energiewende

Key findings at a glance

1

Renewable energy investments are more capital intensive than investments in fossil-fired power generation. They are also much more sensitive to political and regulatory risks. This is highly relevant when addressing Europe's 2030 renewables framework consisting of a binding EU target without binding Member States targets.

2

The costs of capital for renewables vary widely between Member States. Perceived ex-ante risks translate into country specific premiums on the costs for renewable energy investments that have nothing to do with technology risks or weather conditions.

3

Equalising costs of capital throughout the EU would save taxpayers at least 34 billion Euros to meet the 2030 renewables target. It would also allow for broader sharing of the social, economic and health benefits of renewable energy investments, and would particularly benefit EU Member States with lower than average per capita GDP.

4

The revised EU Renewable Energy Directive should address differences in cost of capital by establishing an EU Renewable Energy Cost Reduction Facility. This could empower Member States that choose to use the facility to develop their renewable energy sources at costs currently enjoyed for renewable investments in Germany or France.

5

An EU Renewable Energy Cost Reduction Facility would support decarbonisation and help facilitate the common energy market by broadening the support for renewable energy investments amongst Member States and facilitating the further convergence of national renewable energy frameworks.

Content

Summary: Delivering lowest cost renewable energy investment across the EU	5
1 Introduction	7
2 Cost of capital is a key determinant of RES deployment costs, and varies widely throughout the EU	9
3 The case for EU intervention to reduce the cost of capital for RES investment	13
4 The EU Renewable Energy Cost Reduction Facility: Equalising cost of capital for RES investment across the EU	19
4.1 Risks addressed by the RES-CRF	20
4.2 Mechanism for tariff focussed cost reduction	21
4.3 Mechanism for non-tariff cost reduction	22
4.4 Project selection	23
4.5 The EU-Project Contract	24
4.6 The EU-Member State Contract	25
4.7 Institutional framework, resources and funding	26
4.8 Establishing the RES-CRF	27
4.9 Placing the EU Renewable Energy Cost Reduction Facility in context	27
5 Conclusions and Recommendations	29
Annex: Frequently asked questions	31

Summary

Delivering lowest cost renewable energy investment across the EU

In October 2014, EU leaders set new climate and energy targets for the Union for 2030. As regards renewable energy, the EU is committed to reaching a share of at least 27 per cent of renewable energy in gross final energy consumption.

In a significant break with the current EU framework, the 2030 RES target will only be binding at the EU-level and will not be translated into nationally binding targets. Instead, EU target achievement will be fulfilled through Member State contributions that are guided by the need to collectively deliver the EU target.

Against this background, it seems apparent that *economic incentives* will play an important role in the future EU framework on renewables. Absent nationally binding targets, the economic case for investment into renewables will become more important in national debates. And the ability of the EU to leverage investments into renewables through the EU budget would increase in absolute terms if costs for specific RES investments are kept as low as possible.

The Renewable Energy Cost Reduction Facility (RES-CRF) conceptualised in this paper would be a *voluntary, contractual* mechanism which would allow EU Member States to lower the cost of capital for investment in renewable energy projects.

It is well documented that renewable energy is highly capital intensive. As a result, the cost of capital is a major determinant of the levelised cost of renewable energy deployment (LCOE).

Variance in cost of capital rates across the EU means higher overall costs for meeting renewable energy targets. Yet it also means that – all other things being equal – projects that are less efficient from a resource perspective will be preferred simply because they happen to be in a low cost of

capital country. Furthermore, countries with higher cost of capital rates (which are often poorer Member States) will have higher expenditures to meet their RES goals. In this way, the high cost of capital in poorer Member States threatens to rob these Member States of the economic and social benefits of RES development.

Providing individual Member States with a mechanism for levelising the cost of capital would thus have financial, economic and social benefits, in addition to the climate policy benefits that would accrue to all Member States.

The cost of capital demanded by investors vary between EU Member States primarily because of policy and regulatory uncertainty. Specifically, investors do not know how government policy toward renewable energy will evolve in the future. However, there are a number of secondary, country-specific regulatory issues that also contribute to increased cost of capital.

The economic deadweight cost of this variation in cost of capital is calculated to be at least 34 billion euros between 2020 and 2030.

The RES-CRF will enable Member States to voluntarily enter into a contract with a creditworthy EU institution that defines the financial and non-financial terms by which the Member State will incentivize the expansion of renewables. Based on this contractual commitment from the Member State, the creditworthy EU institution would then provide investors who finance qualifying RES projects with a guarantee that the RES support promised by the Member State will be paid. This will insulate the investor from sector-specific country risks (including, but not limited to, retroactive changes in renewable energy tariffs). This will lower the investor's regulatory and credit risk and their associated cost of capital calculations for a given project.

The contract between the Member State the EU institution administering the scheme would set forth and the basis

under which the Member State would repay any guarantee payments made by the EU to investors under the facility. Hence the EU guarantee would not constitute a collective underwrite of Member State tariffs. Rather, it would transfer the risk associated with enforcing the contract and the Member State's support commitments from the investor to the EU institution.

Under the contract, the Member State would also agree to uphold a number of non-tariff regulatory arrangements for qualifying projects, thus enabling RES project financing at even lower cost of capital rates in the Member State.

If Member States maintain regulatory stability, then the cost of capital premiums demanded by investors for regulatory risk are an ex-ante cost of investment that were unnecessary from an ex-post perspective. By changing the ex-ante risk to investors the RES-CRF would therefore remove a significant and unnecessary cost from the system at no cost to the EU or the Member States.

The paper lays out a number of options for establishing, operating and financing the proposed RES-CRF.

To further develop the ideas presented herein, these options will be discussed in a dialogue with stakeholders scheduled to run from September to December 2016.

1 Introduction

In October 2014, EU leaders set new climate and energy targets for the Union for 2030. As regards renewable energy, the EU is committed to reaching a share of at least 27 percent of renewable energy in gross final energy consumption.¹

In a significant break with the current EU renewable energy framework,² EU leaders also decided that the 2030 RES target will only be binding at EU-level but not be translated into nationally binding targets. Instead, EU target achievement will be fulfilled through Member States contributions that are guided by the need to collectively deliver the EU target.³

What does the 2030 target mean for the future of the EU's climate and energy governance? Furthermore, how can we ensure all Member States contribute to meeting the collective EU target? These vital questions are currently the subject of extensive debate.⁴

Details aside, it seems clear that *economic incentives* will play a greater role in the future EU framework on renewables. In the absence of nationally binding targets, the economic case for investment in renewables is becoming more important in national debates.

Against this background, this paper:

- explains why the cost of capital is particularly important for investment into renewable energy;
- shows that variation in the cost of capital throughout the EU would – if left unaddressed – result in significantly higher costs to taxpayers and consumers than necessary to reach the 2030 target;
- presents arguments for addressing the cost of capital for RES investments in the EU's revised Renewable Energy Directive, which will apply after 2020.
- develops ideas for an EU Renewable Energy Cost Reduction Facility (RES-CRF) that would enable Member States with relatively high cost of capital rates to develop renewable energy at cost of capital levels currently only found in Germany or France.
- concludes by laying out some concrete steps and spotlighting issues that require further analysis and discussion.

The Annex contains an FAQ that addresses issues raised by various individuals as we solicited feedback on our proposal for an EU Renewable Energy Cost Reduction Facility.

1 European Council (23 and 24 October 2014), Conclusions on 2030 Climate and Energy Policy Framework, Doc SN 79/14.

2 Directive 2009/29/EC, Official Journal of the European Union L 140/16 of 5.6.2009.

3 But note the repeated resolutions of the European Parliament calling for nationally binding targets for renewables and for energy efficiency. For example: European Parliament resolution of 4 February 2014 on a 2030 framework for climate and energy policies, available at <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2014-0094+0+DOC+xml+v0//EN>.

4 IDDRI, Ecologic and ClientEarth (2015) "Supporting delivery of climate ambition through the Energy Union".

2 Cost of capital is a key determinant of RES deployment costs, and varies widely throughout the EU

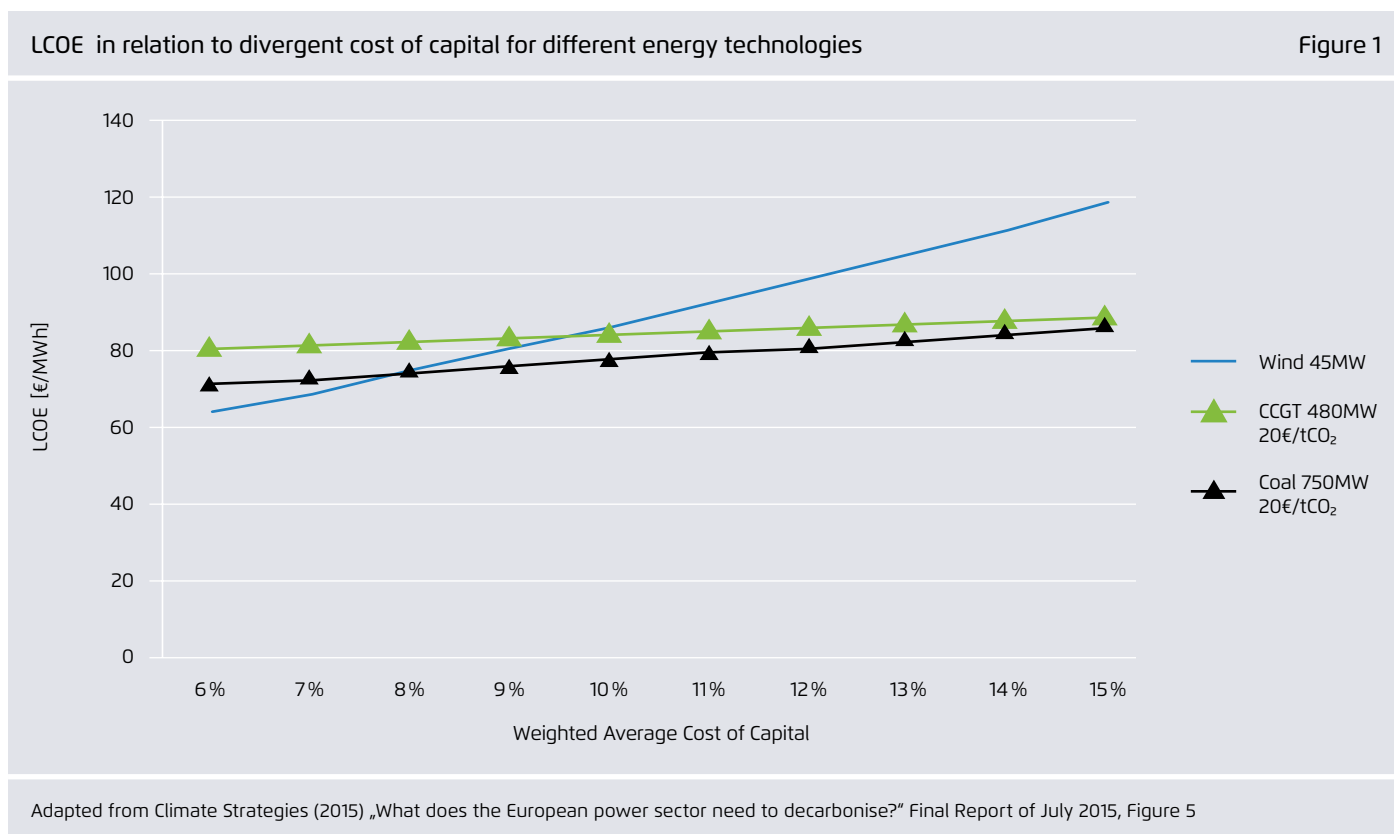
Cost of capital is a key determinant of RES costs

It is well understood and well documented that renewable energy investment is more capital intensive than investment in fossil-based power generation. Fossil-based generation tends to have lower upfront capital costs, but there are ongoing fuel costs over the lifespan of the facility. Renewable energy, by contrast, has zero fuel costs, meaning that initial capital expenditures represent the majority of the lifetime cost of energy.⁵

Higher up-front capital intensity makes RES significantly more sensitive to changes in the political, regulatory and economic conditions than investment in less capital intensive fossil-based generation. This creates a competitive disadvantage for RES investment as compared to investment into fossil-based capacity, given the same market, and all else being equal.

Figure 1 shows by way of example the practical relevance of high cost of capital for an investment in wind power as compared to investment into combined cycle gas turbines or coal. It shows that a nine percentage point increase in the cost of capital leads to a near doubling in the levelised cost of

5 Comparing the Cost of Low-Carbon Technologies: What is the Cheapest Option? AGORA Energiewende, April 2014



energy for wind power, yet to only a 10 percent increase in the levelised cost of energy for gas and coal power stations⁶.

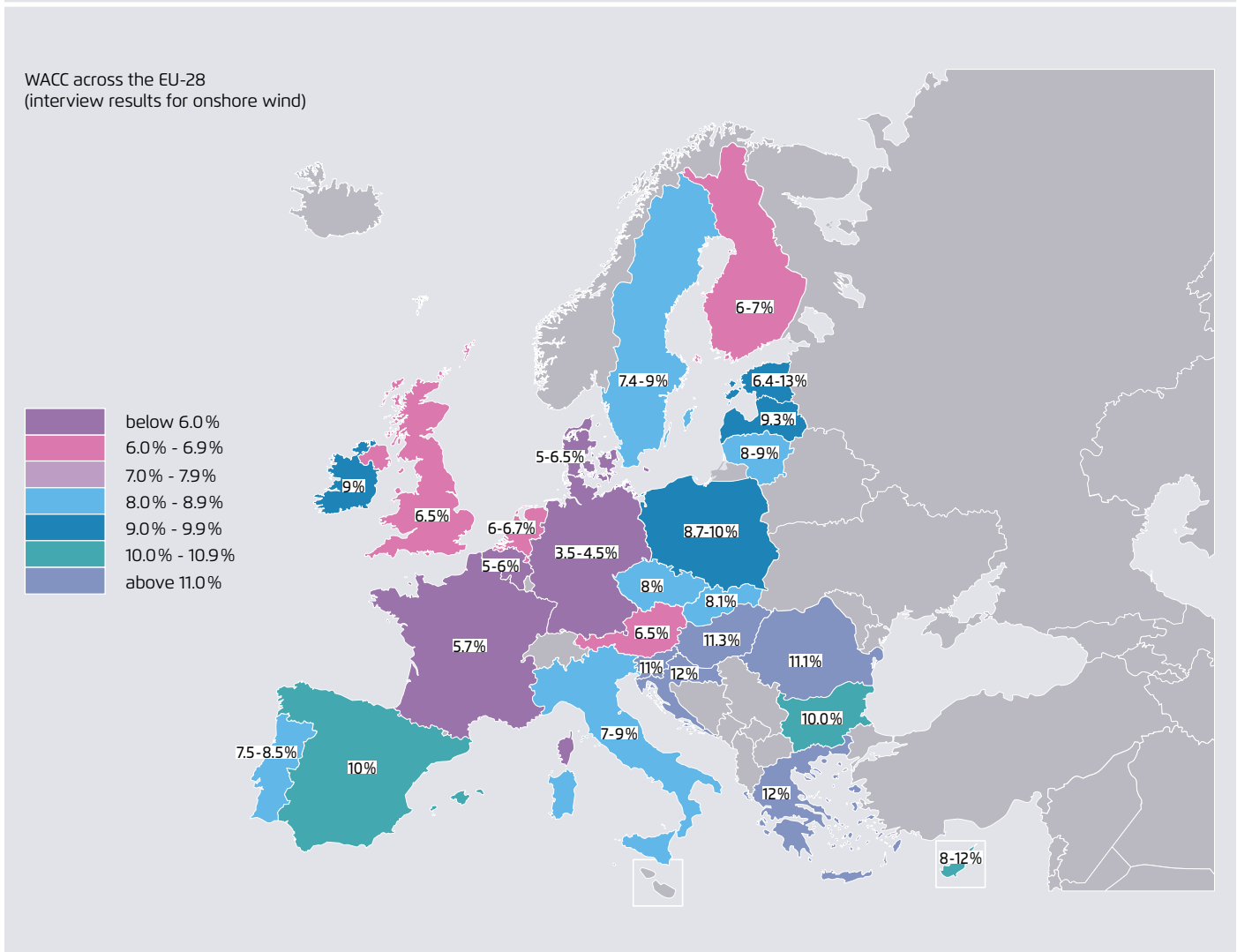
The up-front capital intensity of RES investment also means that differences in RES cost of capital between Member States is a major driver of costs to meet the EU's 2030 renewable energy target.

The significant impact exerted by cost of capital differences is best illustrated with an example: imagine that investors discount a steady flow of capital into RES over a fifteen year period at a rate of 3 percent in one country and at a rate of 10 percent in another. This difference leads to a levelised cost of energy (LCOE) that is approx. 60 percent higher in the high cost of capital country.

6 <http://climatestrategies.org/wp-content/uploads/2015/07/CS-2030-Role-of-the-EU-ETS-and-Complementary-tools-for-power-market-decarbonisation-FINAL.pdf>

Cost of capital estimations for onshore wind projects in Europe in 2014

Figure 2



DIA-CORE (2016) "The impact of risks in renewable energy investments and the role of smart policies"

Cost of capital for investment in renewables varies widely across the EU

In principle, the cost of capital for investment in renewable energy should be low and consistent across all EU Member States:

- The cost of capital should be low because renewable energy investments have largely stochastic cash flows which do not co-vary significantly with the general market for investment (this being the theoretical determinant of cost of capital in the most widely used theories).
- The cost of capital should be consistent across the EU because the fundamental characteristics of investment in, say, wind or solar – given that most projects use off-the-shelf technology – vary little between Member States.

However, a recent study, undertaken as part of the DIA-CORE project,⁷ showed that cost of capital varies significantly across Member States, from a low of 3.5 percent - 4.5 percent in Germany to a high of 12 percent in Greece.⁸ As the fundamental physical characteristics of the investments are very similar, this difference in cost of capital must be a function of factors external to RES projects (macro-economic factors, regulation, etc.). Figure 2 shows the cost of capital for investment in onshore wind projects in 2014 for each Member State.

The findings show that due to differences in cost of capital, the LCOE for a project in Germany is approximately half that of the same project in Croatia or Greece.

Variance in cost of capital is driven by general country risks and by RES-specific risks particular to each Member State

The same DIA-CORE study also identified the key reasons why cost of capital varies so much between Member States.

These factors largely involve country-specific risks. For the purpose of this analysis it is useful to further distinguish between *general country risks* that apply to all investments in a country and *RES-specific country risks*. This latter category can be further subdivided into tariff related risks and non-tariff related risks factors (e.g. grid access).

Figure 3 shows the different *categories of RES-specific country risk* identified in the DIA-CORE research project and also ranks their importance.⁹

For the purpose of this report, we consider the following RES-specific country risks as *related to tariffs* in a broad sense:

- Policy design risk;
- Market design and regulatory risk;
- Sudden change in policy risk;
- Financing risk

We further classify *non-tariff related RES risks* as:

- Administrative risk;
- Grid access risk;
- Social acceptance risk;
- Technical and management risk.

The greatest determinant in the difference in cost of capital between Member States among the RES-specific risks is the *tariff related risks*. There have been several examples of Member States changing tariffs after investments have been made; this is often referred to as a “retroactive change”.¹⁰

Given the highly capital intensive and inflexible nature of renewable energy investments it is impossible for renewable energy investors to adapt their projects in some way to compensate for such changes.

7 DIA-CORE (2016) “The impact of risks in renewable energy investments and the role of smart policies”, Final Report.

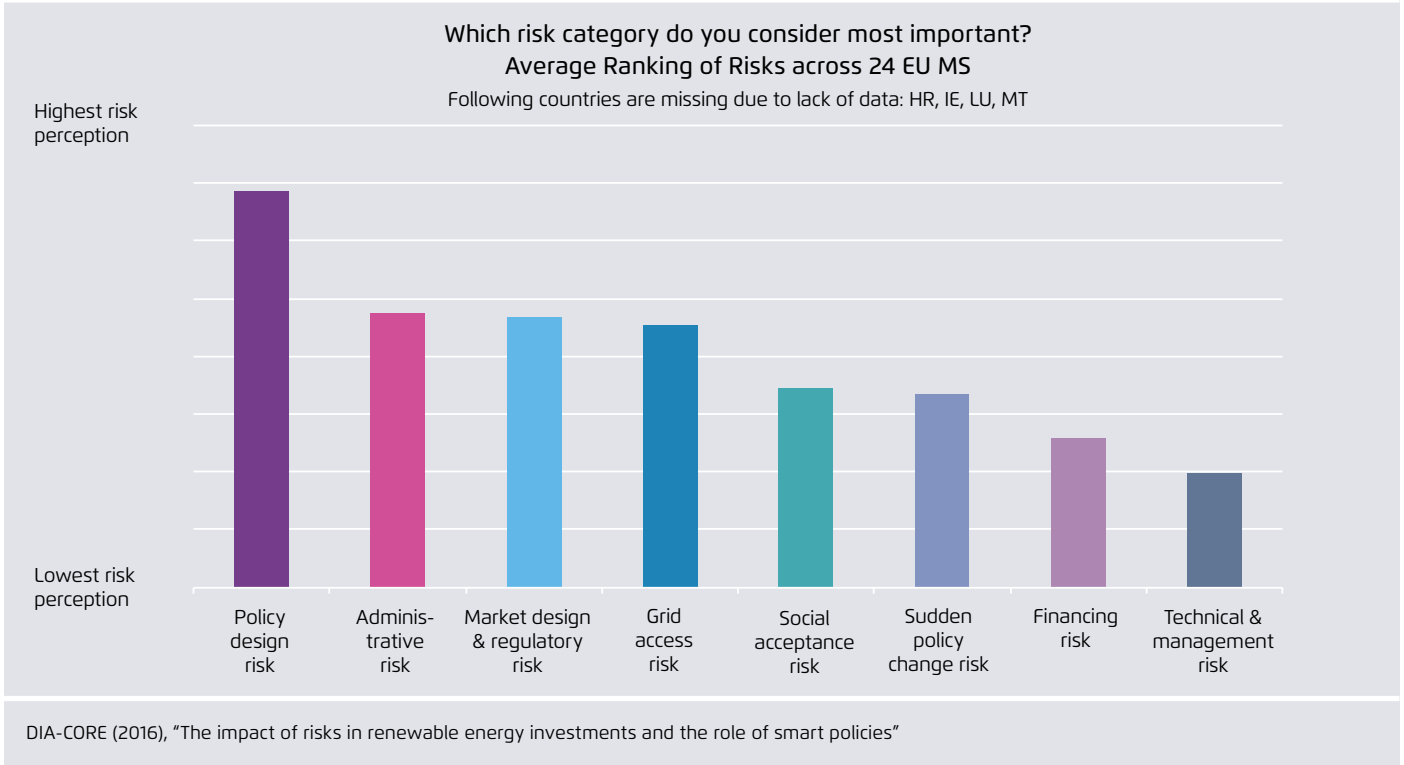
8 <https://ec.europa.eu/energy/intelligent/projects/en/projects/dia-core>

9 The DIA-CORE risk definitions can be found in DIA-CORE, 2016, p. 21-22.

10 <http://www.keepontrack.eu/contents/publicationsbiannualnationalpolicyupdatesversions/kot-policy-paper-on-retrospective-changes-to-res-support.pdf>

Categorisation and ranking of RES-specific country risk

Figure 3



In addition to retroactive tariff changes, some Member States have implemented sector specific taxes with the objective of clawing back the cost of tariffs awarded to renewable energy investment projects. The taxes should be properly viewed as a retroactive change to the tariff itself, yet one that is implemented indirectly through the tax system.

The DIA-CORE project also found that beyond the risk of tariff changes, the structure and implementation of the tariff in a given Member State was a determinant of the cost of capital.

Non-tariff related risks are a secondary but nevertheless important source of increased cost of capital rates for renewable energy projects. This category of risk encompasses various factors that impact the perceived risks to the project in individual Member States. Examples of non-tariff risks include the quality of government administration, transparent and fair access to the grid, etc.

3 The case for EU intervention to reduce the cost of capital for RES investment

Strong proponents of the free market might argue that unfettered market mechanisms should determine the cost of capital for making investments in individual Member States, and that it would be inappropriate for the EU to intervene in this area. Others might argue that there is no particular reason why RES investments should receive special treatment that is not afforded to other sectors of the economy.

This section looks at how RES cost of capital variance between Member States generates real economic losses. It also presents arguments for adding provisions to the post-2020 EU RES framework that would reduce RES investment risk and thereby reduce RES cost of capital.

Deadweight losses from excessively high cost of capital

The cost of capital that is calculated by investors prior to undertaking a RES project is the primary determinant of the LCOE for that project. Accordingly, deadweight losses result when there is a difference between the *expected* and *realised* cost of capital for a given renewable energy investment.

If the calculated cost of capital is high when an investment decision is made because a Member State is perceived as having a number of tariff and non-tariff risks, then the LCOE in that Member State will be higher. However, if the regulatory regime is more reliable than initially perceived, and the risks that led to a higher cost of capital do not occur, then from an ex-post perspective, the investor will have been over-rewarded, and consumers and taxpayers will have overpaid. This means that **if the ex-post risk performance of the investment had been known in advance, then consumers and taxpayers would have been able to achieve greater energy system decarbonisation with the money they have spent.**

Accordingly, the difference between the ex-ante expected cost of capital and ex-post realised cost of capital is a deadweight cost. In our view, sector-specific intervention is justified by the fact that this deadweight cost is largely a creation of the regulatory regime for renewable energy in place in each respective country.

In essence, even if the EU and its Member States establish robust and reliable regulations to achieve the 2030 RES target, but investors view these regulations as unreliable, then very significant additional and unnecessary costs will result (for more on this topic, see below).

A second source of deadweight costs relates to the fragmented nature of markets in the EU for raising renewable energy investment capital. Economic theory suggests that, given an efficient and effective capital market, if investors attempt to over-price risk then other investors will undercut them, leading to better convergence between actual and perceived risk.

One simple argument against the view that markets will function in this manner for RES investment is that finding an appropriate balance takes time. As a result, deadweight costs will occur until the market learns to appropriately price RES risk.

A second argument is that markets are not completely efficient. Particularly when it comes to investment in assets such as infrastructure, the mechanisms to keep them efficient (such as arbitrage) do not always function well. The greatly divergent regulatory risks in Member States naturally fragments the market for investment capital in renewable energy. **If investors were able to view the market for renewable energy investment in Europe largely as one consistent market with the same or similar rules for investment across Member States, this would expand the pool of capital available for RES investment.** A larger capital pool

would enhance the mechanisms that keep markets efficient while driving down the cost of capital across Member States.

In this way, there is a strong theoretical argument for intervention to reduce RES cost of capital: the observed variation in the cost of capital between Member States is not the result of a well-functioning market, but rather the result of divergent regulatory conditions. The associated deadweight costs should be addressed with a policy intervention.

An estimated €34 billion in excess costs will result from business as usual

To get an approximate sense of the excess costs that would result up to 2030 given no action to levelise the cost of capital we performed a simple analysis of the EU 2030 target for renewables.

In our analysis, we estimate the 2030 RES share for each Member State by extrapolating the 2020 targets (recognising that nationally binding targets for 2030 are unlikely).¹¹

We also assume that:

- electricity makes up the same share of RES in 2030 as is predicted for 2020 (43 percent);
- primary energy consumption in the EU in 2030 is 1,200 Mtoe p.a.; and that
- RES-E investment in each country only takes the form of onshore wind, with a capital investment cost of €1m per MW.

Using the mid-range cost of capital for each Member State that was determined in the DIA-CORE project we then imputed a cost for that investment in each Member State, assuming a 15 year tariff period. We then assumed that the

¹¹ See introduction above. Note, however, that indicative benchmarks for national contributions to the collective EU target are increasingly seen as important element of a functioning renewables governance framework with a *collectively binding* EU-level target. For example A. Held, M. Ragwitz et alii (2014) "Implementing the EU 2030 Climate and Energy Framework", Towards 2030 Project. Issue Paper No. 2.

investments made in each Member State could be financed using the same cost of capital that applies to investments Germany (4 percent). It was assumed that any country with a mid-point cost of capital for onshore wind in the DIA-CORE project of 7 percent or above would participate in the EU Renewable Energy Cost Reduction Facility (RES-CRF),¹² and thus benefit from reduced cost of capital. This assumption yields 18 Member States participating in the RES-CRF.

On this very approximate basis, there is a deadweight cost associated with the increased cost of capital in these 18 EU Member States of around €34 billion over 15 years. This means that the RES-CRF has the potential to save the EU approximately €34 billion on investments to meet its 2030 renewable energy target. This is a substantial economic prize in its own right.

However, there are a number of reasons to believe this figure may be rather conservative:

- It ignores the projected increase in electrification of energy systems that is generally associated with the energy transition;
- It ignores the non-electricity RES, which comprises approx. 60 percent of the target and parts of which could also be covered by the RES-CRF;
- It assumes that the nine Member States with a cost of capital of between 4 percent and 7 percent do not take part in the RES-CRF. If they did and their cost of capital was reduced to 4 percent, then the above calculation yields a total deadweight cost savings of €47 billion over 15 years;
- It assumes the DIA-CORE cost of capital for onshore wind applies to all RES-E investments and that all RES-E is onshore wind. Onshore wind is among the lowest cost and lowest risk renewable energy technologies and so savings in cost of capital and deployed capital are both likely to be greater for other technologies;
- This approach to the estimation of capital requirements for the RES target only required about one sixth of the

¹² Detailed considerations on the functioning, set-up and financing of the RES-CRF are found in Section 4 of this paper.

total investment needed for reaching the 2030 target estimated by other commentators, suggesting our analysis is very conservative in terms of capital deployed.¹³

The analysis also shows that the majority of the savings are in a small number of countries. The top four Member States for cost of capital savings represent 64 percent of overall deadweight cost, these being Italy, Poland, Spain and Sweden. The addition of three more Member States (Greece, Portugal and Romania) brings this figure up to 81 percent. Thus, based on this analysis, over 80 percent of the deadweight cost savings (approx. €27 billion over 15 years) could, in principle, be saved through seven negotiations with individual Member States.

Member States with high cost of capital would need to pay relatively more to contribute to EU target achievement if differences in cost of capital remain unaddressed

Another way of framing the argument is not based on cost but on resource allocation for EU target achievement across the Member States.

If, solely because of its cost of capital (i.e. all other considerations being equal), Member State X has, say, a 30 percent higher LCOE requirement for the same project than Member State Y, then if the two Member States implemented a similar tariff for RES investors, the available resource (the wind or solar resource at a given site) in Member State X would need to be 30 percent higher in order to achieve the required return.

This is a simple function of revenue being the product of price and volume. If the price is the same but the cost of capital is higher, then the volume of renewable energy produced must be greater in order to compensate.

¹³ Estimations of the investments needed for decarbonising Europe's power sector are in the range of €1trillion by 2030. See Bloomberg New Energy Finance 1st July 2014 estimate for European investment to 2030: ECF, Roadmap 2050: Financing for a Zero-Carbon Power Sector in Europe, 2011.

This means that meeting an EU-wide target for renewable energy with varying costs of capital across Member States will lead to lower quality physical resources being exploited in lower cost of capital countries and higher quality physical resources being left unexploited in higher cost of capital countries.

The same idea holds true for the market value of volatile renewable energy sources that depends on the amount of installed capacities and the options to use the generated electricity:¹⁴ Varying costs of capital across Member States will lead to lower market value electricity being produced in lower cost of capital countries and higher market value electricity not being built in higher cost of capital countries (or being built at avoidable high costs).

Put differently, a higher cost of capital Member State will need to pay more to make the same contribution to achieving the collective EU target for renewables than a lower cost of capital Member State.

Hence the EU would meet its 2030 renewable energy target using a sub-optimal allocation of its physical and economic renewable energy resources largely because of cost of capital differences, which are predominantly a creation of regulatory risk.

Member States with high cost of capital will benefit less from the social and economic benefits of RES deployment if differences in cost of capital remain unaddressed

High costs of capital have further social and economic consequences for Member States.

Focussing first on the *economic and industrial impacts*: All other things being equal, a Member State with a high cost of capital will, for a given overall cost, only be able to achieve a lower volume of renewable energy deployment than is op-

¹⁴ Fundamentally on the issue of market value see L. Hirth (2013), The market value of variable renewables, *Journal of Energy Economics*, 38(7), 218-236.

timal. This means that the potential for economies of scale in the supply chain, in operations and in construction are also smaller, likely leading to greater inefficiency and hence even higher cost.

Hence the higher costs of capital constrain the scale of deployment in a given Member State and further drive up the actual capital and operating costs of projects. This leads to a vicious cycle of economic inefficiency.

From a *social equality perspective*, it is noteworthy that the higher cost of capital Member States are also largely the ones with lower per capita GDP (see figure 2 above). If renewable energy is more expensive in these Member States due to a high cost of capital then this creates a situation in which the tariff impact on consumers is highest in Member States where citizens can least afford it.

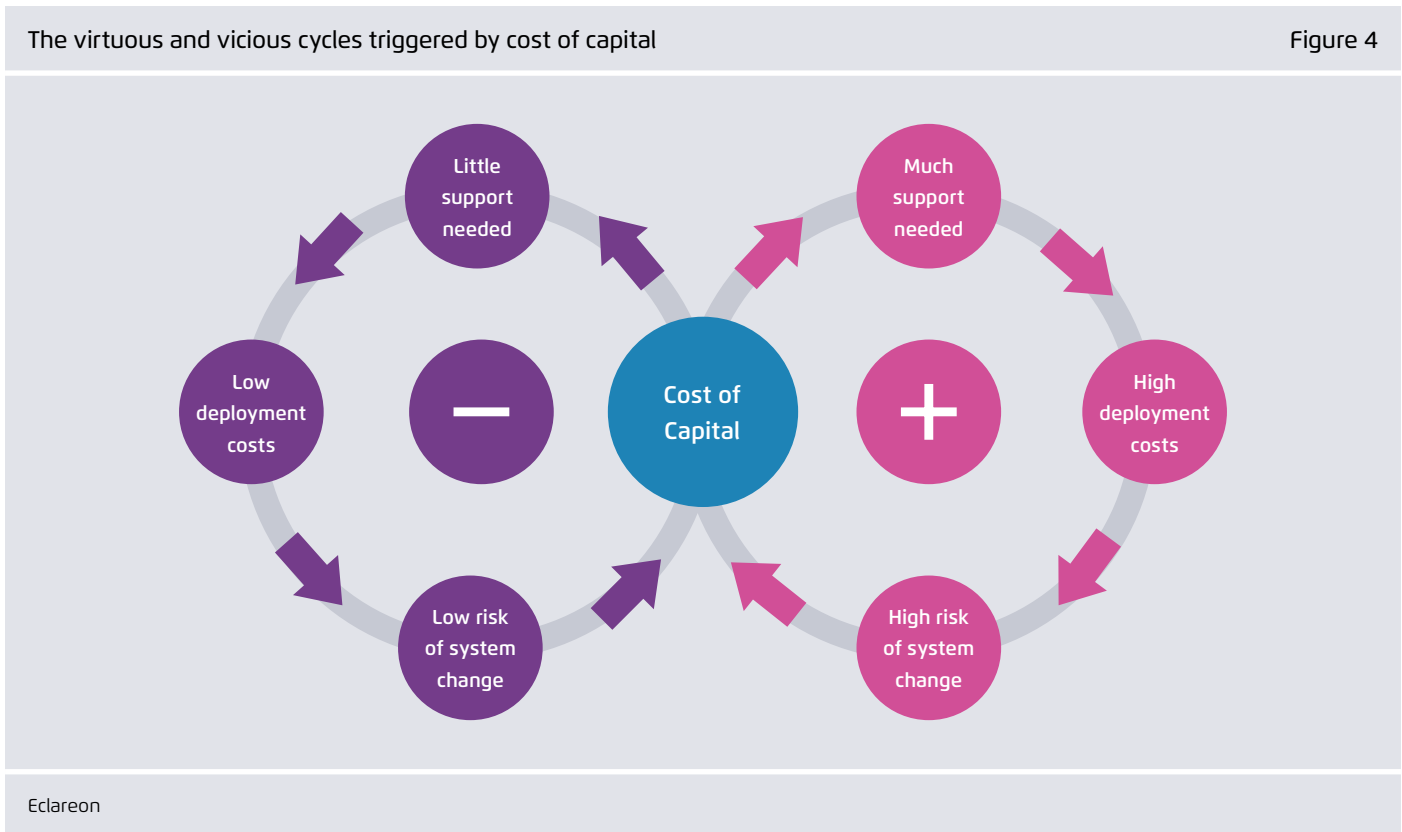
Linked to this, numerous studies have shown the potential for positive economic benefits of an energy transition based

on renewables and efficiency.¹⁵ These positive economic benefits include the creation of jobs in construction and operations as well as cascade effects that encourage broad-based economic development. Of course, renewable energy development also has considerable benefits for the environment and human health.

Figure 4 depicts how a virtuous cycle of economic efficiency and improvement could result from the deployment of renewable energy at a lower cost of capital, as well as the vicious cycle of inefficiency and lost economic and social opportunity stemming from a higher cost of capital.

In this way, the uneven cost of capital in the EU for renewable energy investment threatens to deprive Member States – particularly those that are relatively poor – of the positive economic and social benefits of the energy transition.

15 http://www.irena.org/DocumentDownloads/Publications/IRENA_Measuring-the-Economics_2016.pdf



RES investment conditions should be addressed in the revised Renewable Energy Directive

In October 2014, EU leaders set a new 2030 target for RES. They also decided that this target will not be translated into nationally binding targets for each Member State. Rather, it remains a *binding EU-level target*, to be reached by the Member States as a *collective*.

Against this backdrop, and given the magnitude of the investment challenge associated with decarbonising Europe's power system,¹⁶ we believe that the **revised Renewable Energy Directive** should address the economic, social and distributive effects of wide cost of capital variance between Member States for RES investment. Specifically, the revised Directive **should include a focused EU-level intervention to "de-risk" renewable energy investment in high cost of capital Member States**. The de-risking of RES investments would reduce the cost of capital for RES investment in high cost of capital Member States and also narrow differences in cost of capital between Member States.

As regards the future EU renewable energy framework, we would see a number of benefits associated with such intervention, including:

- A very significant reduction in the deadweight costs of achieving a collective EU-level target;
- An opportunity for Member States with currently high cost of capital – which typically are Member States with relatively low GDP per capita – to contribute more to EU target achievement at the same cost to their consumers and taxpayers;
- An opportunity for Member States with currently high cost of capital to enjoy more of the social, economic and industrial benefits associated with investment into renewable energy sources at significantly lower costs, thus enabling these Member States to enter the virtuous cycle of cost efficiency in RES deployment while reaping the associated benefits;
- An opportunity to broaden ownership and support for achieving the collective EU RES target and more broadly for an EU energy transition based on renewables and energy efficiency;
- An opportunity to develop renewable energy sources in Member States with currently lower RES penetration and thus higher market values, which also means reducing a

Box 1: Success of de-risking interventions outside Europe

Recent auction results in countries outside of Europe were partially won at very low rates, including in countries generally considered "high risk" from an investor perspective. The North African country Morocco, for example, recently achieved a new low for wind energy costs, securing average bids of just \$30/MWh from its tender for 850MW of large-scale wind energy projects, with the lowest at around \$25/MWh.¹⁷

These results are explained by excellent wind resources with a high capacity factor of approximately 65 percent, the large capacity auctioned (850 MW), but also a low risk evaluation due to the concrete engagement of the government of Morocco and strong backing by international financial institutions (World Bank, MIGA, EBRD), guaranteeing approximately 80 percent of the 20-year contractual support tendered.

¹⁶ See footnote 13 above.

¹⁷ See <http://cleantechnica.com/2016/01/18/new-low-for-wind-energy-costs-morocco-tender-averages-us30mwh/>

potential revenue gap when selling renewable electricity and thus the amount of project investment that must be financed through general taxes or levies on electricity prices.

- An opportunity to reduce system integration costs for renewable energies by broadening the geographical scope of RES deployment.
- The lowering of transaction costs for bilateral or regional cooperation on renewables. Member States with similar risk profiles could, for example, jointly auction new capacities and thus benefit from a broader, more liquid and thus cheaper pool of capital.

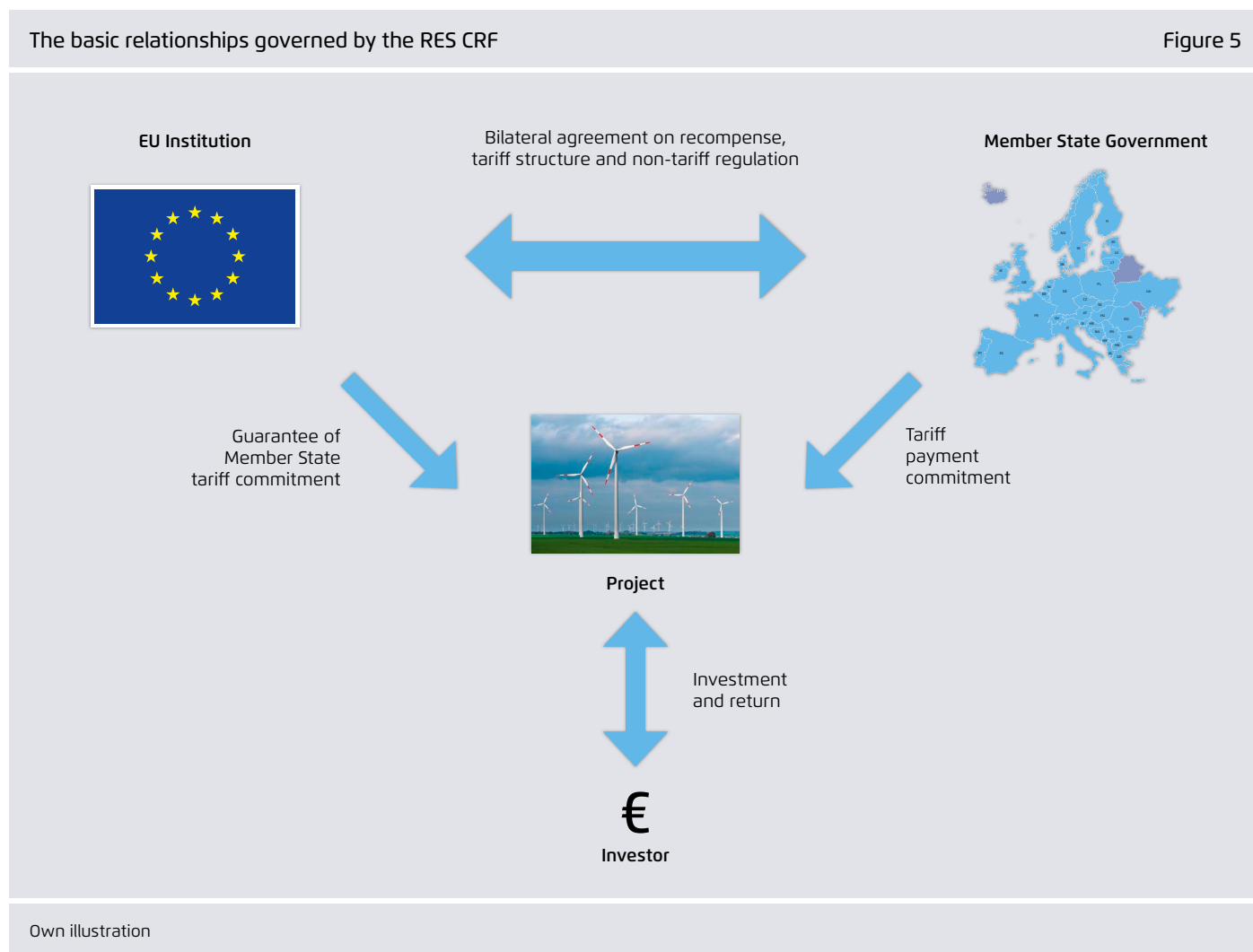
The remainder of this paper develops the concept of an **EU Renewable Energy Cost Reduction Facility ("RES CRF")**.

Importantly, **we conceive of this facility as entirely voluntary and as something that could be tested on a small scale by a Member State before a decision is made to augment its scope.**

4 The EU Renewable Energy Cost Reduction Facility: Equalising cost of capital for RES investment across the EU

Our proposal for an EU Renewable Energy Cost Reduction Facility (RES-CRF) aims to establish a fair, effective, and transparent mechanism for RES investment across the EU. Specifically, the facility seeks to close the gap between the ex-ante *perceived* cost of capital and the ex-post *realised* cost of capital. By establishing similar conditions for RES investment across Member States, a single and deep pool of capital for RES investment would be created, thus optimizing capital pricing while enabling more efficient capital allocation.

Under the proposed RES-CRF, each Member State would have an opportunity (yet not an obligation) to negotiate the terms of its support for RES investment with a designated EU institution, and would contractually agree with that institution to fully fund that commitment to renewable energy. Backed by this contractual commitment from the Member State, a creditworthy central EU institution would provide investors in renewable energy with a payment guarantee. This guarantee would underwrite the commit-



ment made by the Member State to provide the renewable energy subsidies established under its tariff regime.

The basic relationships between the investor, the Member State and the EU Institution administering the RES-CRF are shown in Figure 5.

Thus, in the regulatory scenario that we expect – that is, in which Member State regulations are consistent, fair and transparent – RES projects will be developed as before, and will receive tariff payments provided by the Member State. In such a scenario, the guarantee provisions of RES-CRF would not be used. However, investors would know that if Member States began to roll back their renewable energy commitments, then immediate recourse to a creditworthy EU institution would be possible. The investor would therefore require only an EU minimum rate of return on investment.

Importantly, **the EU institution backing the RES-CRF would not provide an uncovered underwrite of Member State policy.** Before projects under its jurisdiction would be able to utilise the RES-CRF, the Member State would need to come to a contractual arrangement with the EU institution overseeing the RES-CRF. This agreement would cover the following three elements:

- The terms on which the EU institution providing the RES-CRF guarantee can reclaim costs associated with payment to projects in that Member State from the Member State in question;
- The form of tariff that the EU institution is prepared to underwrite and the volume of projects which would qualify for the facility and how those projects would be selected;
- A set of non-tariff commitments with respect to renewable energy investment regulations.

In this way, the RES-CRF would deal directly with the main identified sources of increased risk and cost of capital for investors. Specifically:

- The risk of tariff change or the equivalent through sector specific taxation;
- The structure of the tariff regime in question;
- The non-tariff regulatory exposure of the investor in renewable energy projects.

In addition, thanks to underwriting by a highly credible EU institution, the RES CRF would ensure that investors apply the same risk rating to projects covered by the facility that they would apply to the most creditworthy Member States.

In effect, the proposed RES-CRF would make investment in renewable energy across Europe much more consistent, expanding the investment environment that is currently only available in low cost of capital Member States to all EU countries. It would do so simply by changing the ex-ante risk assessments of investors. Furthermore, if a Member State maintains stable regulations, this removal of unnecessary cost from the system would come at no cost to the EU or to the Member States.

The precise arrangements for the RES-CRF are discussed in the following sections.

4.1 Risks addressed by the RES-CRF

The RES-CRF is designed to deal with tariff and non-tariff risks of renewable energy investment in EU Member States. The facility should not, however, insulate the investor from the basic risks of investing in renewable energy or, for that matter, the basic business risks of investing in a given Member State. Such risks are not the sources of inefficient deadweight costs or the product of renewable energy regulations.

Renewable energy risk matrix

Figure 6



Figure 6 categorises renewable energy project risks into three groups and shows how they would be treated by the RES-CRF. It shows two sub-categories of risk which the RES-CRF would deal with. These are:

- Tariff risks both in terms of a simple and transparent structure of the tariff and most importantly the payment of the tariff (and including sector specific taxation);
- Non-tariff sector specific regulation such as planning and grid regulation.

The diagram further shows two categories of risk which will not be covered by the RES-CRF. These are:

- The fundamental risks of RES investing, such as resource availability, production, capital costs, operating costs, etc.;
- The general risk of investing in the Member State in question. This includes general business regulation, taxation and non-sector specific law and regulations.

This provides for a clear set of principles on which the allocation of risk is determined under the RES-CRF, helping to ensure the RES-CRF only mitigates risks that are in effect the creation of sector specific regulation.

4.2 Mechanism for tariff focussed cost reduction

The tariff related issues are the greatest source of increased cost of capital between Member States¹⁸ and there are two sub-sets of issues within this: the first being the *risk of non-payment* and the second being the *complexity of the structure and form of the tariff system* implemented by the Member State. The RES-CRF would seek to deal with both of these.

¹⁸ See also Section 2 above.

Addressing the risk of non-payment of tariffs guaranteed under a national RES scheme

Dealing first with the risk of non-payment of the promised tariff at the time the investment decision was made, the architecture for the investor is very simple. We envisage a short, simple and robust guarantee by the underwriting EU institution for payments promised under the tariff regime prevailing in the Member State at the time of the investment decision.

This would provide investors with a clear and simple form of recourse to a creditworthy EU institution for the project in question.

The exposure of that EU institution would then be managed through a direct contractual relationship between it and the Member State. The EU institution and the Member State would agree on the exact form of the tariff arrangement that is being underwritten, and agree that the Member State will refund any payments that that institution has to make under the guarantee.

The renewable energy project and its investors would thus be relieved of the need to enforce the tariff arrangements promised by the Member State. This would become a matter between the EU institution and the Member State.

Addressing risks relating to the form or complexity of the tariff system

The second issue for investors in relation to tariff risk is the form and complexity of the tariff arrangements. Addressing this issue is helped by the fact that the EU institution and the Member State involved will need to negotiate and agree on the form of the tariff that is being underwritten before projects may benefit from the RES-CRF.

This negotiation creates a space that allows progressive implementation of best practice arrangements regarding the simplicity and transparency of the tariff involved, as the EU institution will look to achieve a very clear and transparent basis for its underwriting. The broadening of best prac-

tice tariff design for projects covered under the RES-CRF also means a further progressive convergence of features contained in national tariff designs. Convergence would, in turn, further lower investors' transaction costs and create further opportunities for cost reductions.

One factor to consider in the arrangement between the EU institution and the Member State is that RES tariffs or support regimes are often not directly contracted between projects and the Member State government. Member States often establish regulations under which intermediate entities (a grid company, a regulator, energy suppliers or a specially mandated company) collect funds and disburse them to projects.

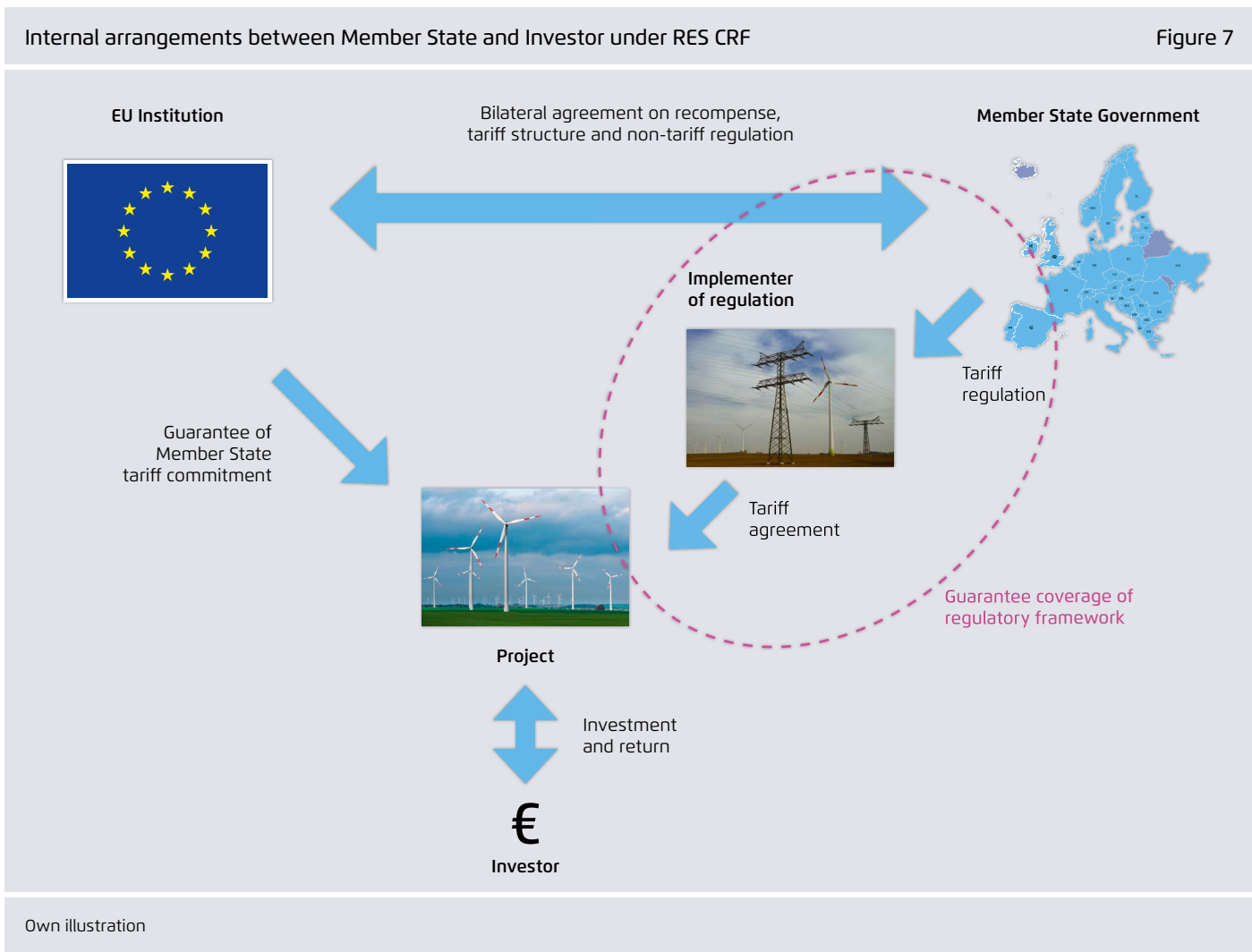
This said, the contractual arrangement between the EU institution and the Member State would be the same regardless of the internal arrangements of Member States to stabilise the revenues of renewable energy investments (e.g. funded through a surcharge on the electricity price that is paid out by the Distribution System Operator through government budgets). It would be up to the respective government to determine the best means of internal recourse in the event the EU institution seeks compensations for a guarantee invoked by a project developer/investor.

Figure 7 illustrates how this would work.

4.3 Mechanism for non-tariff cost reduction

Non-tariff related risks are much harder to underwrite and define than the simple obligation to pay a tariff. There are several ways in which the EU institution backing the RES-CRF could influence the non-tariff regulatory framework for renewable energy in a Member State. These are:

- Negotiating a commitment from the Member State to implement certain rules and standards of regulation more specific than the general design principles set out in EU law (e.g. RES Directive, Electricity Market Directive, State Aid Rules);
- Establish a set of best practices with the Member State which it commits to implement and report on.



Both of these aspects could be addressed as part of the negotiation to qualify for the RES-CRF.

In contrast to the tariff itself, non-tariff regulations are more of a qualitative issue. Hard and fast rules in this area of non-tariff regulation could be difficult to formulate and could also raise sovereignty issues in certain areas. However, it should be possible to use existing databases that describe and assess existing barriers to RES projects across all sectors. Such a database could be used as a starting point for identifying the most severe barriers in a given Member State and to develop approaches for how these barriers can be abolished.

Alternatively, as part of qualifying for the RES-CRF, the Member State could agree to implement a set of best prac-

tices in the key areas of non-tariff renewable energy regulations. These best practices would be reported against and benchmarked against other Member States and in extremis the Member State might lose its right to support for future projects if it consistently fails to meet certain standards. The emphasis on eliminating barriers as well as adopting best practices means that these arrangements can be negotiated in a way that is tailored to the Member State in question. We believe this will provide additional opportunities for the convergence of cost of capital between Member States.

4.4 Project selection

How will projects qualify for the RES-CRF? This is a critical question, as the desired reduction in the cost of capital

requires that investors are fully confident ex-ante that they will benefit from inclusion in the RES-CRF. The underwriting EU institution will also want to ensure that projects are not adversely selected in a way that leads it to underwrite poor policies or questionable projects.

It is also likely that the EU Institution backing the scheme will wish to have a limit on the amount of projects that can benefit from the RES-CRF and that it will want transparency on its exposure within that limit.

There are a number of ways, none of them mutually exclusive, for this to be achieved:

- The facility could cover the whole of a Member State's renewable energy sector;
- The facility could cover the whole of a sector up to a pre-defined cap on the number of projects and/or capacity;
- Where national or regional auctions are implemented for the award of tariffs then coverage by the RES-CRF could be a consequence of winning in the auction (subject to a capacity or volume cap);
- The Member State could submit a specific list of projects that it wished to be covered.

There could also be a mixture of these arrangements. For instance, in the case of very large and capital intensive schemes the Member State government may wish to nominate specific projects, whereas in the case of a widely distributed programme of small-scale investments (for instance, a roof top solar programme) the Member State may wish the whole programme to be included.

While the RES-CRF will have an interest in controlling its exposure by limiting the amount and type of qualifying projects, similarly a Member State may decide to limit its engagement with the RES-CRF, at least initially. From the perspective of a national government, we can well see the benefits of a step-by-step engagement: as a first step, general arrangements could be negotiated between the EU institution and the Member State for obtaining access on principle to the facility. The practical and economic benefits could then be tested in a pilot project. A Member State and

stakeholders could then decide to expand their engagement with the RES-CRF, once confidence has been built and some experience established.

This points to an additional benefit of the RES-CRF: the very fact that the Member State needs to negotiate a specific process for approving a volume of projects with the RES-CRF reduces the risk of cost overrun in its overall national scheme, as has happened before in many Member States, thus giving investors more confidence in renewable energy investment conditions.

Since the Member State is committing by contract to reimburse any claims arising from projects under the RES-CRF guarantee and the EU institution is taking on the risk of the Member State defaulting on this commitment, both parties have an incentive, during the upfront negotiations, to agree to reasonable and financially sensible limits to the Member State's support programme and the EU institution underwriting that programme. This comprehensive assessment will send a very strong signal to investors that the programme in a given Member State is deliverable and credible.

4.5 The EU-Project Contract

The contract between the project developer and the EU institution providing the guarantee will be *very short, very simple* and *very robust* from an investor's perspective.

It would be a **simple on-demand payment guarantee** with payment triggered by the project immediately upon the failure of the Member State (or the body mandated by the Member State to make payment) to make the required payments under the agreed tariff regime at the time the guarantee was entered into.

The guarantee will also pay-out immediately the value of any sector specific taxes implemented after the guarantee has been put in place.

Note that the *on-demand nature* of the guarantee is that there is no procedure required to claim payment. The project makes a valid demand and the guarantor pays. If that demand

proves later to be invalid then the EU institution backing the guarantee would reclaim the money paid from the project.

The making of a frivolous or fraudulent claim would be grounds for cancellation of the contract. Subject to this caveat the EU institution will not be able to cancel or amend the contract.

The contract would also define the terms by which *any premium* is paid for the guarantee by the project in question. In case of a (small) mandatory premium, there would be an incentive not to use the RES-CRF unless actually needed, while revenues generated from premiums could be used for augmenting the volume of projects that could be underwritten. We would also expect that the project would be able to give up the guarantee at any point (or perhaps after a certain short period).

The contract would give the project no assurance as to the non-tariff related risks covered by the RES-CRF. This is because the EU and the EU institution backing the RES-CRF do not seek to intervene in a way that impacts risks specific to the project. Furthermore, even if such intervention were appropriate and legally possible, it would dramatically increase the complexity of the arrangements.

4.6 The EU-Member State Contract

The contract between the EU institution administering the RES-CRF and the Member State in question will be significantly more complex and lengthy. We foresee two major operative sections: *tariff-related* and *non-tariff related*.

The primary objective of the *tariff-related section of the contract* is to ensure that the Member State provides swift recompense of any payments made under the RES-CRF. This will be achieved through establishing a very clear contractual definition of the tariff that the EU institution is underwriting. Furthermore, the process for approving projects that qualify for access to the RES-CRF will also be specified.

This will require the team managing the RES-CRF to negotiate with each Member State the exact form of the system

that the Member State wishes to put in place along with the institutional framework that backs payment under that arrangement. Regardless of the arrangement for the management and disbursement of the tariff (i.e. even if it is via a grid company or other vehicle), the RES-CRF contract would be with the Member State government.

The terms for project approval and the extent of the guarantee will also need to be negotiated in detail. The Member State will be under no obligation to include all (or any) of its RES schemes in the RES-CRF, but where it does include them they will need to be included in detail.

The contract will simply state that if a valid guarantee has been issued under the RES-CRF and payment is called for under that guarantee then the Member State needs to provide immediate recompense.

The *non-tariff related part of the contract* will provide for the Member State to make certain commitments as to its performance for a number of non-tariff related aspects of renewable energy regulation. As noted above this will either involve a number of hard commitments as to the way some non-tariff risks are managed in the Member State, or a commitment to reporting and achieving certain benchmarks for performance on non-tariff risks.

The reporting and the ability of the EU institution to audit that reporting will be a key aspect of this part of the contract.

The contract will not include financial penalties for the non-tariff risks covered. There is, however, a risk that the RES-CRF arrangement could be withdrawn for future (not yet existing) projects if the Member State fails to comply with the commitments it has made on non-tariff risks.

The very existence of the EU-Member State contract should enhance investor confidence in the implementation of Member State policy in the area of renewable energy. In effect, the Member State has voluntarily negotiated the terms on which it will support renewable energy investment and committed to the EU to repay any costs of non-performance

related to tariffs. The EU institution has agreed to underwrite that programme based on the expectation that the Member State is able to honour that commitment. This gives a very strong signal to investors as to the financial viability of the programme and its associated tariffs and targets.

4.7 Institutional framework, resources and funding

Institutional framework

Throughout this paper the EU entity backing the RES-CRF has simply been referred to as the "EU institution". There are a number of potential EU bodies that could fulfil this function, including the EU Commission itself, the EIB, an entity specifically set-up and backed by the EU or its Member States for this purpose, or others.

The two key selection criteria should be that it is very financially sound for the risk it is taking and has the skill-set required to put the necessary arrangements in place with the Member States. These criteria probably favour the EIB as the entity to operate the facility.

Human resources

The human resource requirements of the RES-CRF are relatively limited. An implementation team would be needed to negotiate contracts with participating Member States. Based on the DIA-CORE study, this could involve up to two-thirds of Member States.

A small operational team would also be required to monitor the contracts, allocate contracts to new projects, make guarantee payments (should there ever be any), and manage eventual claims for recompense from Member States.

Funding

While no one expects the facility's guarantees to be called upon, there is of course a risk that guarantee payments will be required and that the Member State in question will subsequently default on its obligation to repay the EU institu-

tion. This means that some form of financial backing will be required for the entity, despite the contingent nature of the obligations.

This financial backing could, in principle, come from one of four places:

- EU budget allocation;
- A commitment from Member States;
- Balance sheet reserves at the EU institution (e.g. the EIB);
- The commercial market through, say, insurance.

Although an *allocation from the EU budget* is challenging to obtain, it would arguably provide the strongest basis for the RES-CRF, not least because it would express a clear political commitment to its objectives. There are two apparent challenges linked to this: first, the approximate amount of the budget required for the RES-CRF will require further analysis and, second, the time-frame for projects benefiting from the EU-backed guarantee would be longer than the seven-year budget cycle currently used at the EU level. Thus, budgetary means committed to the RES-CRF would likely need to be injected into a self-standing fund independent from the EU's budgetary cycles.

One could imagine a situation in which a *low cost of capital Member State* decides to take on the role of the "EU institution" and underwrite the development of renewables in another, *high cost of capital Member State*. This would squarely fit in context of the cooperation mechanisms foreseen under the current EU Renewable Energy Directive. However, it would require some good political communication that puts the mutual benefits at the centre of the public debate rather than arguments that one Member State is paying for another Member State.

In the latter two cases of backing (*balance sheet reserves, commercial market*), it is likely that a premium would need to be paid in order to remunerate the risk being taken by either the institution or the commercial market. Both of these methods would allow implementation of the facility without the need for a specific EU budget allocation. While both methods represent a novel form of risk, this risk could

potentially be insured by the commercial market, given the right terms.

The entities implementing projects as well as participating Member States would naturally be prepared to pay a premium to investors so long as this premium only represented a fraction of the reduction in LCOE achieved by the lower cost of capital.

Particularly if commercial insurance was to be explored, then a simple cost-benefit analysis would need to be made: Is the required premium substantially less than the benefit accruing to the project and the Member State from being a part of the facility?

A further advantage of a small premium being payable by the projects which take up the RES-CRF is that as investors became inherently confident again in investing in given Member States then they will rationally cease to take up the guarantee (i.e. the risk would no longer be worth the cost). This would make **the RES-CRF potentially a transitional mechanism, automatically phasing out once the investment community regained confidence in Member State renewable energy programmes.**

A *hybrid funding solution* is also conceivable. For instance, the EU could provide a first loss capital allocation from its multiannual budget to a body like the EIB. The EIB would then be able to more efficiently price the risk of the rest of the programme on its balance sheet. It would still charge a small fee to projects for accessing the guarantee. Such hybrid funding solutions may make it easier to manage time-frame mismatch (e.g. between EU funding cycles and the length of applicability for RES tariffs in Member States).

4.8 Establishing the RES-CRF

As a voluntary contractual arrangement, the RES-CRF would only require a minimal amount of new legislation and regulation.

As regards formal legislation, the revised RES Directive that will be proposed at the end of 2016 will not establish an EU

de-risking mechanism as such. Rather, it will set forth objectives and a basic regulatory concept, in addition to further empowering the Commission to come forth with an ambitious proposal for implementing a detailed framework following the adoption of the multiannual EU budget for the post-2020 period.

However, it may well be that there are institutions (such as the EIB) who can pursue the RES-CRF entirely within their existing mandates if there is political interest to do so. This requires further exploration.

Whether one uses an injection from the EU budget or funds from an existing balance sheet, there is a need to allocate contingent risk capital to ensure the creditworthiness of the guarantees and to fund the unlikely prospect of a pay-out under the guarantees and a default under the EU-Member State contract. The calculation of this contingent capital allocation and the potential pricing of the guarantee premium to projects are important early steps in assessing the viability of the scheme and the attractiveness of the scheme to both Member States and investors in RES projects in those Member States.

As noted above, the RES-CRF would then need an implementation team and operational team both of which we would expect to be small and which should utilise existing resources to the greatest extent possible. We do not envisage the creation of a new institution. The RES-CRF should be housed in an existing institution

4.9 Placing the EU Renewable Energy Cost Reduction Facility in context

At the end of this paper, it seems important to stress that we do not envision the establishment of an EU Renewable Energy Cost Reduction Facility in isolation, but rather within the context of a set of interacting and mutually reinforcing measures and policies. To highlight some:

→ In context of addressing tariff-related and non-tariff-related risks in the EU-Member State Contract, we highlight that national governments and the EU institution would

be able to build on general design principles of national RES frameworks set out in the revised EU Renewable Energy Directive as well as a growing body of best practice standards for national renewable energy frameworks.

- The RES-CRF could also be used to support access to finance for eventual regional-level cooperation in support of larger and more complex RES projects.
- It could play a role as “gap avoider” in the new EU renewable energy governance system.
- The required amount of project finance risk mitigation would relate to effective changes in the EU’s power market design. Put differently, if successful market design reforms create more economic opportunities for volatile wind and solar PV in the market, then there will be less risk for renewable energy investments in the power sector overall.
- The ex-ante risk perception of RES project developers and investors will also vary with the quality, consistency and robustness of national energy and climate plans of Member States that will be developed in context of the EU Energy Union governance.
- The risks associated with RES investments will also vary with the consistency between national energy and climate plans and the development of necessary grid infrastructure.

Conclusions and Recommendations

Benefits for consumers, taxpayers, investors and Member States

The RES-CRF described in this paper has the potential to remove up to €34 billion of deadweight cost from the delivery of the EU's 2030 binding renewable energy target and, along with it, to bring about a more efficient allocation of resources and a fairer and more equitable distribution of the benefits of renewable energy across the EU.

Hence the RES-CRF has many major policy benefits for the EU.

The RES-CRF will reduce the cost of capital and hence the LCOE for renewable energy in many (perhaps up to two thirds) Member States in the EU. This will reduce the cost of meeting the 2030 target and, most importantly, reduce the cost to consumers in countries where they can least afford it.

Investors will be insulated from some of the key risks of greatest concern to them when investing in renewable energy in many Member States of the EU. They will have a more consistent regulatory framework in which to operate and will be able to look to a central EU institution for backing wherever they are investing.

The Member States signing up to the RES-CRF will see the cost of delivering renewable energy reduced. This will lower the costs to their consumers and while creating opportunity for them to enjoy a larger share of the industrial, economic and social benefits of the renewable energy transition in their state.

Member States who already have a low cost of capital (e.g. Germany) will benefit from a broader sharing of deploying renewable energy in their markets, a more efficiently delivered EU renewable energy target, and the economic benefits that this brings.

The RES-CRF process would additionally benefit all Member States by increasing transparency on the intentions of

Member States to contribute to 2030 EU RES target, as well as the financial viability of those intentions.

Recommendations on next steps

Based on our analysis, we conclude that the issue of de-risking RES investments should be addressed in the revised EU Renewable Energy Directive.

A de-risking intervention based on the logic of the RES-CRF developed in this paper would directly tackle the root causes for high cost of capital in some Member States without insulating investors from the basic business risks of investing in a given Member State.

Throughout this paper, we have highlighted issues and questions that require further analysis and discussion. These include:

- A more comprehensive cost-benefit assessment of the RES-CRF in the context of the EU 2030 renewable energy target;
- Potential savings from a RES-CRF for some of the high cost of capital Member States;
- An approximation of the contingent funding requirement for the RES-CRF;
- A detailed understanding of the contractual architecture. In particular, it would seem beneficial to get feedback from investors and project developers on a blueprint of the on-demand guarantee, and to fully understand the "nuts and bolts" that will need to be addressed in the arrangement between the EU institution and a Member State.
- A more concrete understanding of the institutional set-up of the RES-CRF, practical options for how it could be set up, and related resource implications.

It is expected that these and other issues will be discussed in a dialogue with stakeholders scheduled to run from September to December 2016.

Annex: Frequently asked questions

Question	Answer
1. Does the EU institution underwrite the risk of a future Member State government changing the tariff?	Yes, but only for projects covered by tariff-commitments where it has agreed a back-to-back contract with the Member State.
2. Does this mean a Member State government effectively binds a future Member State government through the contract with the EU institution?	Yes, but only for those projects and related tariffs that are part of the back-to-back contract.
3. Does a project developer or investor have to take the guarantee?	No, and there will probably be a small charge for taking a guarantee. Ideally, over time investors will gain confidence in the Member State tariff and stop taking the guarantee. A small charge will encourage guarantees to only be taken when they are needed.
4. Wouldn't a pay-out like that which occurred in Spain or Italy due to retroactive tariff changes create enormous liabilities for the EU institution?	Yes, but there are two reasons why this is not an issue now. Firstly, support costs for RES are now substantially smaller, as the technology is cheaper. Secondly, the EU institution will place a limit on the volume of guarantees it will issue under the contract with the Member State. Therefore the exposure will always be limited and sustainable. A pay-out like in Spain or Italy will not happen.
5. Is this proposal a way of moving the risk of enforcing RES tariffs in Member States from investors to the EU institution?	Yes. That is the point.
6. How much money would an EU institution need to back its liabilities?	Ideally, the guarantees will never be used. Hence the financial backing is for liabilities of a highly contingent nature. The best way to size the capital required is to look at the liquidity the EU institution might need between paying out and enforcing the contract on the Member State.
7. Does the guarantee cover the market power price?	No
8. What if the Member State refuses to pay the EU institution under the agreement it has signed?	It will be contractually obliged to do so.
9. Why should a Member State with a low cost of capital risk (however contingent) have to make payments under the guarantee for a rogue Member State who implements retroactive changes?	There is no direct monetary transfer from one Member State to another. There is, however, a small risk that EU funds used for financial backing of the facility might eventually be lost. So the question really is why a Member State that will not use the facility should accept that EU funds are used for that purpose. It will accept, because the benefits outweigh the risks of pay-out. For some those benefits will be about the economic efficiency this system brings, or about fairly spreading the benefits of the energy transition. For others it will be about ensuring they do not have to make a physically disproportionate contribution to the 2030 target.
10. Is this RES targets for Member States by the back door?	No. Participation in the scheme is entirely voluntary. And the volume of projects under the RES CRF would be entirely determined by the Member State in question.
11. Does the guarantee cover all RES tariffs in a Member State?	No. It only covers projects and tariffs specified in the contract between the EU institution and Member State. The agreement could also consist of a general understanding on underwriting, including provisions concerning the volume of projects to be covered.
12. Is this a single EU tariff by the back door?	No. Participation is voluntary. Member States can design their tariffs as they see fit. This said, participation is likely to lead to some standardisation of arrangements around best practices which is to the benefit of everyone.

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