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Cooperation under the RES Directive

Case study: Joint Projects/Statistical Transfer between Malta and Italy

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Task 4 report

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A report compiled within the European project "Cooperation between EU MS under the Renewable Energy Directive and interaction with support schemes"

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Executive Summary

This case study analyses through a bottom up approach two options of cooperation between Italy and Malta. The starting point is not the legal definition of the Cooperation Mechanism as such (for instance, Statistical Transfer/Joint Project). Instead the discussion starts from the analysis of concrete cases of cooperation and then discusses under which article of the RES directive they would fall. Two cases are therefore discussed :

1. Existing plant[1] already receiving incentives is used for the cooperation;
2. A new plant is used for the cooperation.

The case study addresses several questions raised by Malta and Italy:

1. Is it possible to ensure target achievement cost-effectively? How to reconcile this with the quest by the host country to maximise its income deriving from the cooperation in order to lower the burden of existing incentives?
2. What are the implications of focusing on a specific technology?

The study argues that on the one hand, using an existing RES plant for a technology-specific cooperation might seem beneficial at first sight because support would not have to be granted for the entire economic life-time of the plant. On the other hand, we show that support for newer plants is significantly lower than for existing plants to an extent that supporting a new plant over the entire life-time might be cheaper than burdening the remaining support period for an existing plant. However, relying on a newly built RES plant incurs a risk of non-implementation of the plant, resulting in risks of non-compliance for Malta (with its RES target) or Italy (potentially not meeting the requirements of the cooperation agreement) and pointing to a trade-off. Additional backup options of Statistical Transfer could mitigate this risk for both Member States.

[1] That came operational after the 25th of June 2009

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1 Introduction

The European Directive 2009/28/EC establishes national renewable energy targets for the European Member States. Moreover, it introduces the possibility for Member States to cooperate in order to jointly achieve their national renewable targets. The types of cooperation available to the Member States include Statistical Transfer (Art. 6), Joint Projects (Art. 7), and Joint Support Schemes (Art. 11); they imply that two or more Member States combine (part of) their renewable target to achieve this target more efficiently. In the case of Joint Projects, two or more Member States decide to jointly finance installations for renewable energy, whose power production then counts towards the participating Member States' target achievement. Cooperation in a Joint Project may exceed the year 2020, since it is likely to be related to the entire support period of the project.

In the case of Statistical Transfer the objective of the cooperation in principle is pure target achievement. Cooperation is thus rather punctual and short-term oriented at least for the off-taking country. At the contrary, the host country may experience long-term impacts if additional capacity is needed in order to meet potential target obligations beyond 2020.

In this case study, we explore the possible cooperation between Italy and Malta. Malta estimated in its 2010 NREAP a production surplus in 2020 of 0.2% of RES (i.e. 0.107 Mtoe), which could be eligible for export under one of the flexibility mechanisms. However, in its 2013 progress report the country foresees a 2.0 ktoe deficit in 2020 (corresponding to 23.26 GWh per year). Moreover, as the country states, "Malta's size and geographical constraints make the use of cooperative mechanisms very interesting for the achievement of the 10% RES share in gross final energy consumption in 2020. They are potentially fall-back positions should any part of the current NREAP fail to materialise." [2]

According to latest projections and the 2013 National Energy Strategy, Italy is going to reach its target of 17% of final energy consumption covered by RES. Compared to the 2010 NREAP and the 2009 Forecast Document pursuant art. 4(3) of the RES-Directive, which foresaw a 1,170 ktoe deficit in 2020, the target will be achieved entirely through domestic RES production[3].

Table 1 shows an overview of the data provided in the Maltese and Italian 2013 Progress Reports regarding their excess or deficit RES production compared to the indicative trajectory of their respective NREAPs[4]. Italy now expects to have an excess RES production that could fully cover Malta's expected deficit.

[2] 2013, Malta Progress Report, page 21
[3] Thus, Italy will not need to import RES target achievement of 13.6 TWh per year under article 9 of RES-Directive as planned in the past. Moreover, despite this changing background, Italy is determined to fulfil previously signed agreements on cooperation in the renewables sector with other countries, such as Serbia. However, despite the potential to fulfil its target domestically, the Italian National Energy Strategy published in March 2013 foresees a contribution of the cooperation mechanism up to 1% of final energy consumption, taking the projected RES share from 19% to 20%[3].
[4] Article 22 (1) l, m) of Directive 2009/28/EC

Table 1: actual and estimated excess (+) and/or deficit (-) production of renewable energy compared to the indicative trajectory (Source: 2013 progress reports)[5]

ktoe	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Italy	3,418	5,263	6,765	7,209	7,384	6,971	6,797	6,102	5,796	4,661	3,666	2,858
Malta				2.99		3.92		6.42		10.45		-2.00

2 Case study set up

The starting point is not the legal definition of the Cooperation Mechanism as such (for instance, Statistical Transfer/Joint Project). Instead the discussion will start from the analysis of concrete cases of cooperation and then discuss under which article of the RES directive they would fall. Two cases are therefore discussed :

1. Existing plant[6] already receiving incentives;
2. Realisation of a new plant;

A preference has been expressed by Malta to focus on defined technologies and identified plants, as this would significantly improve public acceptance of the cooperation. Moreover, this approach would support the precise assessment of costs and benefits because the perimeter of cooperation is clearly defined.

Thus, the main interest is the question of which types of installations could be used for the cooperation, rather than a definite decision on which Cooperation Mechanism to choose. Accordingly, we will assess each option regarding direct cost of public support (i.e. only the incentive without consideration of direct/indirect administrative, social/environmental costs), the length of cooperation, benefits and possible governance.

Finally, we will assess under which of the Mechanisms this cooperation would fall, Statistical Transfer or Joint Projects. This aspect is not entirely clear and one of the main conclusions arising from the discussion is that the boundaries of the two mechanisms are rather blurred when looking at the substantial scope of cooperation.

Malta has expressed an interest in analysing options involving RES-E, in particular two technologies:

- **PV solar**: if the entire deficit has to be covered by this technology, it has to involve the equivalent of 18 MW of installed capacity;
- **Wind**: if the entire deficit has to be covered by this technology, it has to involve the equivalent of 13 MW of installed capacity.

[5] Please note that the following figures are based on the MSs 2013 Progress Reports. For Malta, there is a discrepancy with a RES share of 1.4% reported by Eurostat. However, in this case we rely on the figures provided in the Progress Reports.
[6] That came operational after the 25th of June 2009

From the Italian point of view, cooperation with a focus on the abovementioned technologies is beneficial since they represent the biggest share of installed RES capacity since 2009 and the biggest cost in term of support payments. Thus, focusing on these technologies provides an option to reduce part of its support costs.

Both Member States expressed an interest in cooperating with regards to few commercial-scale projects, rather than a higher number of small-scale/domestic-type projects. This allows the off-taking country, Malta, to focus on projects that it could not undertake on its own territory due to geographical limitations. On the one hand, the implementation of a large number of domestic-type projects may be in principle better with regards to public acceptance in the host country, Italy, since the related environmental impacts are limited. However, concentrating on fewer projects may reduce the related transaction costs and thus enhance the feasibility of this cooperation compared to the realisation of a large number of small-scale projects. In the latter option, many more stakeholders would have to be involved, thus adding a further element of complexity.

In 2014 a high voltage alternating current (HVAC) interconnector, capable of bidirectional flow of electrical power at 132 kV/250kV, with a capacity of 200MW[7] between the two countries is due to come into operation. However, the case study does not consider the physical transfer of electricity between the two countries, since neither country has expressed any interest in exploring this option.

3 Analysing the alternative setups

3.1 Option 1: An existing plant already receiving incentives is used for the Cooperation

In this and the following sections we briefly assess, how the preference of both Malta and Italy can best be met. In the first option Maltese investors buy out existing PV/wind plants, which already receive incentives from the Italian support scheme. The RES-E production of the involved plants would subsequently be counted towards Malta's target achievement. Under this option the off-taking country, Malta, would cover the support costs up to the year 2020. This option provides the opportunity to relate the cooperation to specific plants, while keeping the support period shorter than the usual support over the life-time of a plant (in case of pure operational support). At first sight, this might keep support costs lower than if the entire lifetime of a plant is supported. However, as we will see further below, this assumption is problematic, as support levels for older plants are significantly higher than for new plants, thereby largely offsetting the savings due to a shorter support period.

The first element of the analysis is a direct cost assessment. Since the cooperation involves plants that are operational and receiving incentives, direct costs comprise the amount of incentives these

[7]For further details about the project please refer to the website https://www.enemalta.com.mt/index.aspx?cat=20&art=177

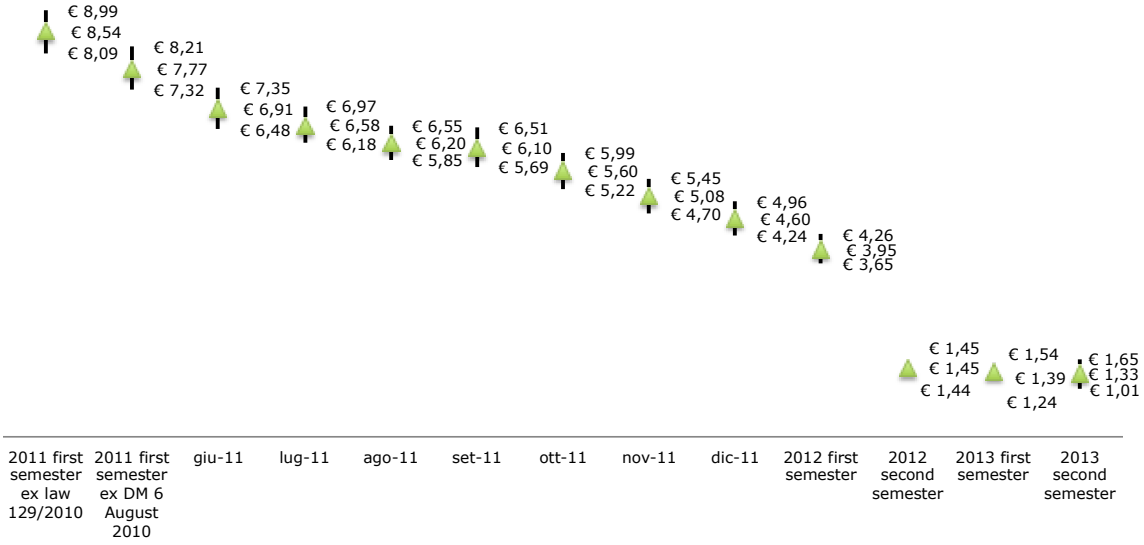
plants are granted each year. Regarding PV, we assume that the 18 MW of required installed capacity comprise plants ranging from 1 MW to 5 MW with an average production of 1300 kWh/kWp. The range of 1 MW to 5 MW is based on the fact that the number of commercial plants in Italy above 5 MW in operation is "only" 168 against 964 installations of the range between 1 and 5MW[8].

Figure 1 sums up the cost range, thus presuming that the cooperation agreement covers 18 MW, according to the period when plants became operational (millions of euro per year). The lower end of the range mostly represents ground-mounted / non-integrated plants, whereas at the top we find rooftop systems, which receive the highest incentive. The green triangle represents the average cost of incentives per year. It is worth noting that during the considered time period four different incentive regimes have been in place. The first three schemes were based on a feed-in premium scheme (paid for 20 years), whereas the last support scheme (which came into force the second semester of 2012) provides a feed-in tariff. Accordingly, the net cost of the incentive is calculated as the difference between the tariff and the zonal price of electricity, for 20 years and a premium on electricity consumed on-site.

The bottom end of the cost-range for plants falling under this scheme is represented by non-integrated systems with a self-consumption rate of 100%. The top end comprises of rooftop integrated plants with 0% of electricity consumed on-site and an yearly average electricity price (PUN) of €75.48 in 2012 and €62.99 in 2013. However, the actual cost of incentives varies according to electricity prices and the on-site consumption rate, relating the calculation of actual support costs to high uncertainties.

[8] Source: GSE

Figure 1: cost of support of PV under existing schemes (EUR, millions; Source: own elaboration, based on tariff established by DM 19 February 2007, DM 6 August 2010, DM 5 May 2011, DM 5 July 2012[9])



Until 2012, PV plants could also benefit from minimum guaranteed prices, which may represent an additional cost in case market prices fall below the guaranteed prices. However, due to the uncertainty of this cost aspect and based on the fact that from 2012 PV plants cannot access this scheme anymore, we excluded the cost aspect related to minimum guaranteed prices.

Regarding RES-E from wind, we considered a single 13 MW on-shore plant and 1800 hours of annual production. Two different support schemes apply with regards to wind: green certificates and since 2012 tenders. Green certificates (their cost is represented in table 2) are set to expire from 2015 and will be replaced by a fixed tariff for the remaining incentive period. The green certificates scheme is based on 15 years incentive period, whereas tenders foresee a 20 years support period.

Bidders to tenders are awarded an incentive on the net generation of electricity fed into the grid by the plant calculated as the difference between a support level and the zonal price of electricity, so that the incentive varies according to the market price and location. Table 3 shows the weighted average awarded tariff (for both 2012 and 2013 tenders that have been carried out). Table 4 represents calculations of the net cost of the incentives (the awarded tariff minus the yearly average national electricity price (PUN) of 2013 and 2014).[10] As we can see the net cost of the incentive is

[9] Calculations do not take into account effects of art. 26 of Law Decree 91/2014 on PV tariffs granted to existing plants. The decree allows operators to choose between two options: under the first option tariffs are cut by 17% to 25% (in consideration of the period when the plant became operational) but the incentive period is prolonged from 20 to 24 years; under the second option tariffs take a cut by 8%, independently of their year of entry into operation and the incentive period remains 20 years.

[10] The original formula as already stated would use the hourly zonal price, making the exact cost of incentives very dependent on location and actual hourly production.

obviously inversely related to the electricity price: the higher the electricity price, the lower the incentive and vice versa.

Table 2: Costs of green certificates

Year	Green certificate price[11] (€, 1 certificate = 1 MWh)	Total incentive cost (€Million/ year)
2009	98.00	2.29
2010	88.91	2.08
2011	87.38	2.04
2012	82.12	1.92
2013	80.34	1.88
2014	89.28	2.09

Table 3: tender schemes tariff awarded

	Starting auction price (€/MWh)	Average Reduction (%)	Average Tariff Awarded (€/MWh)
2012	127.00	7.81	117.075
2013	124.46	11.52	110.117

Table 4: tender scheme cost calculation

Year	PUN (€/MWh)	Net Incentive = $Tariff_{2012}$ – PUN (€/MWh)	Net Incentive = $Tariff_{2013}$ – PUN (€/MWh)	Yearly cost **$Tariff_{2012}$** (€ millions)	Yearly cost **$Tariff_{2013}$** (€ millions)
2013	63.0	54.1	47.1	1.26	1.10
2014[12]	49.6	67.5	60.5	1.58	1.41

Those costs ought to be netted with taxes. As in the case of PV incentives allocated before the second semester of 2012 no VAT applies. For wind green certificates and tariffs awarded through tenders, as well for solar PV installations above 20 kW from the second semester of 2012, the regular 22% VAT applies. Incentives as they constitute an income are subject to a 4.25% tax (IRAP) and to the 27.5% enterprise income tax (IRES). All plants above 3 kW are also subject to the municipal real estate tax (IMU). However, these have to be assessed on a case by case basis and translated in €/MW to be deducted from the cost of support covered by the off-taking MS. The fiscal impact deserves a deeper

[11] Source GSE . Extract from page 44 Bollettino 1° semester 2013. VAT excluded
[12] From the first of January to the 16th of June

investigation since at plant level RES represent a positive source of income, at a more general level the picture could be more nuanced.

As stated in the introduction, Malta expressed interest in focusing on cooperation related to commercial-scale plants for two reasons: the first is economical, commercial scale plants are cheaper to build, thus LCOE is lower as well as the cost of incentives. The second is geographical: this kind of plants cannot be reasonably built on Malta's territory due to geographical and environmental reasons (section 4 further explores these assumptions). Based on this, the cooperation could add a further advantage, as Malta would be able to get involved in certain RES technologies.

3.2 Option 2: Realisation of a new plant

This second option is rather different in terms of scope of collaboration compared to the previous. In this case, Italy and Malta agree to support the private sector development of one (or several) newly built plant(s). In order to mitigate the development risk, the two Member States may require that projects have already gone through the administrative approval process and are ready for building.

Moreover, Malta may choose to support the project during the construction phase with an investment grant or during the operational time period with a production incentive. The option of an investment grant has been mentioned as a point of specific interest by Malta. The main issues in terms of advantages and disadvantages of the two approaches to provide support are illustrated in table 5.

Table 5: Investment grant versus production incentive

	Investment grant	Production incentive
Accounting	• Most likely financed by public budget → on balance sheet, subject to deficit limits; • Effort concentrated in a short timeframe.	• Most likely financed by consumers/utilities through electricity bill → off-balance sheet • Diluted effort in several years.
Bankability	• RES are capital-intensive investments and have low O&M costs. An investment grant could therefore be beneficial both for the bank and the operator since it reduces financing needs; • Reduce equity/debt needed, thus lowers the weighted average cost of capital (WACC); • If granted during the construction phase (under a pre-defined schedule) it may constitute a benefit for the bank since it allows it to intervene at a later stage of the construction phase, thus reducing risks; • Compared to production incentives, it reduces regulatory risks (incentive regime could eventually change)	• Encourages developers to build reliable facilities which maximise energy production; • Enhances returns throughout the whole life of the project → attractive for financial investors (like pension funds) and less for industrial operators;

	Investment grant	Production incentive
Tax system	If considered concession of aid (no public procurement) in principle NO VAT and it does not constitute an income for the recipient.	VAT, Income taxes → contribution by off-taking country should be netted by these positive flows for the host country
Aid intensity	100% if bidding process otherwise ranging from 65% to 45% of eligible costs depending on enterprise dimension	Not applicable
Accountability	A grant can be managed and controlled directly by the off-taking country, thus improving accountability and public acceptance.	As stated before the preferred solution requires the management by the host-country, the off-taking country can exert only an indirect control.

The evaluation of the costs for this case has been carried out for PV, under the following assumptions:

Capital cost ('000 €/MW)	900
O&M cost ('000 €/MW)	30
WACC (%)[13]	9.76
Electricity price - PUN (€/MWh)[14]	66.5
Tariff (€/MWh)[15]	110.0
Incentive for on-site consumption (€/MWh)[16]	28.0
Consumption on-site (% of total production)	85

Figure 2 shows the effects on LCOE and IRR using an investment grant (under different scenarios of aid intensity[17], i.e. the % out of the total eligible costs[18] covered by the grant) or a production incentive (a tariff). Figure 3 compares the total costs of support under different scenarios. The total cost of the tariff scenario corresponds to the net present value (NPV)[19] of the production incentive during 20 years. For reasons of simplicity, the WACC is kept fixed in all cases. However, it should be noted that each scenario entails a different risk level and a different capital allocation, thus the WACC may vary. In all scenarios electricity prices are kept constant for 20 years.

[13] It is assumed a capital structure composed by 40% equity and 60% of debt, with Kd = 8,51% and Ke levered = 15,13%.
[14] Calculated as the 10 year average of PUN.
[15] Calculated as the feed-in tariff attributed to "other plants" from 1 to 5 MW of installed capacity in fifth semester of application of DM 5 of July 2012 reported in Annex 5 of the same and kept constant for 20 years.
[16] Calculated as the difference between the tariff and the electricity price, here assumed as constant during 20 years
[17] The top rate of aid incentive is put at 65% as indicated in annex 1 of the draft guidance of state aid (100% is admitted only if a bidding process is in place). Aid intensity varies according to company size.
[18] We assumed eligibility for modules and BOS costs, thus excluding the expenses for design, permitting, legal advices.
[19] In this case since we are talking about public resources the discount rate is 5%

Figure 2: investment grant versus production support, effect on IRR and LCOE

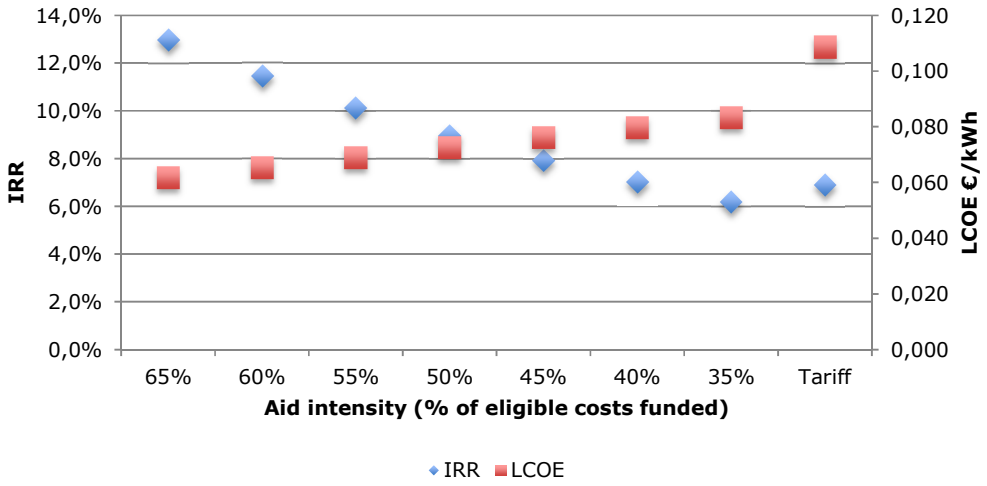
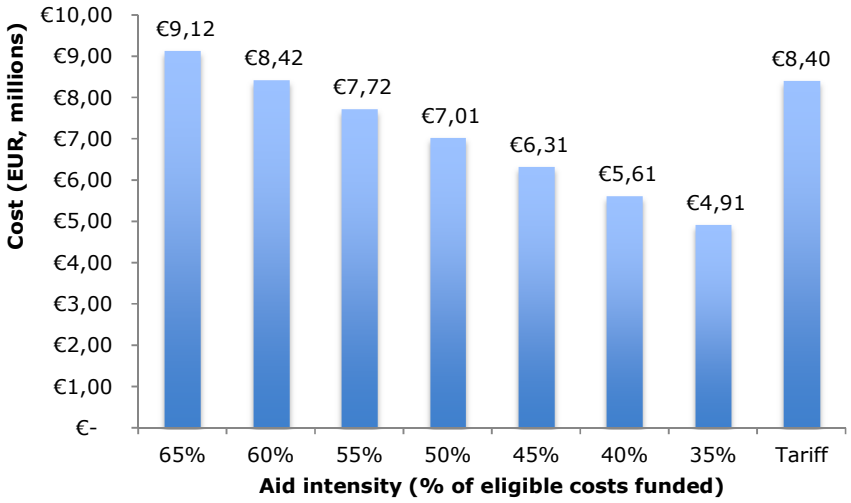


Figure 3: investment grant versus production support, total cost of support



It is important to underline that only projects where the NPV is positive (IRR > WACC) are profitable, thus feasible. Under our assumptions this condition is met only with grants covering more than 50% of the construction and installation costs. Regarding the length of cooperation, option 2 implies its continuation beyond 2020, because in this case, the full project development would be supported.

Considering the governance approach of this cooperation, as already stated in table 3, in principle an investment grant could be better managed directly by the off-taking country. Investment grants may lead to opportunistic behaviour of economic agents if they are not well design. This could be the case where the developer receiving the grant does not actually implement the project. The agreement

between the two countries should take into consideration these aspects and foresee how to address these risks.

On the contrary, if a production incentive is chosen it may be more suitable that such a support is managed by the host country. In order to avoid state aid issues, a transparent process of project selection needs to be in place.

4 The choice of the Cooperation Mechanism and its economic feasibility

This chapter discusses which of the Cooperation Mechanisms might adequately accommodate either of the two options. We consider in detail Statistical Transfers and Joint Projects. Table 6 illustrates general considerations about the two legal frameworks.

Table 6: Comparison between Joint Projects and Statistical Transfers

	Joint Project	Statistical transfer
Cooperation until 2020 or beyond?	Project lifetime	Until 2020 (multiple years or only 2020)
Cost of cooperation	Will potentially be more expensive (because usually support costs would have to be borne beyond 2020).	Will generally be cheaper than a Joint Project (because limited timeframe of cooperation)
Specific technology-development?	Most likely: yes	Most likely: no
Additional installations?	Most likely: yes	Most likely: no
Private participation	Direct	Indirect
Incentives	May require additional ad hoc incentives as negotiated by Countries	Based on bilateral negotiation
Public acceptance (e.g. "tangible" results)	Potentially better public acceptance (for Malta and for Italy because "real" project is installed)	Less costs (better acceptance), but no tangible results (nothing to show)
Level of risk	High and concentrated on the off-taking country • Construction risk • Uncertainty over actual energy production Host country risk for not reaching its own target.	Low and concentrated on the host country • Risk to guarantee promised production to be transferred Off taking country risk for not reaching its own target.

The length of cooperation makes the first difference between a Join Project and a Statistical Transfer. Joint Projects ought to cover, in principle, the entire life of the project, which usually corresponds to its economic life (thus exceeding the year 2020). Statistical Transfer "may have a duration of one or more years"[20] but the cooperation would not exceed the year 2020. These considerations may lead to the conclusion that option 1 (using an existing plant which is support until 2020 only) corresponds to a Statistical Transfer and option 2 (support new plants) to a Joint Project. However, if in this latter case the Member States chose to support the development through an investment grant, cooperation might be limited only to the construction phase and years of operations prior to 2020.

The second element relates to technology requirements. In principle a Statistical Transfer is technology neutral. However, as already discussed, in order to improve public acceptance, Member States may relate the Statistical Transfer to a specific technology. Moreover, Statistical Transfer could be related to the energy production of specific plants. In this case the two mechanisms could prove in substance rather similar, the difference residing more in the information to be included in the notification to the EC. In the case of Statistical Transfer, no specific plants have to be notified whereas in the case of Joint Projects, specific plants need to be mentioned in the notification. However, although a Statistical Transfer would be notified to the EC, the actual agreement between the Member States may very well relate to specific plants for the above mentioned reasons of public acceptance.

Drawing from these considerations we argue that Statistical Transfers do not cover in principle specific plants. In case Statistical Transfers are related to specific plants for reasons of political and public acceptance they ought to be operational before 2009 in order to speak of Statistical Transfer. Joint projects cover specific plants that could be newly built under the agreement or that came operational after the 25th of June 2009. A Joint Project may be coupled with an additional Statistical Transfer to reduce the risk for the off-taking country that the actual energy output from the Joint Project falls short of what is required to meet the RES target.

These considerations may also be applied to the question of private sector involvement, which is mentioned by art.7 of RES Directive but not by art. 6. In case of a Joint Project we have a direct involvement of private actors in the agreement, whereas in case of Statistical Transfer, the private sector is not directly involved in the agreement, but of course in the related RES production.

Two practical issues arise in this context: In case existing plants are used for cooperation, the question arises how to identify the plants. Second, in case newly added plants are envisaged with this cooperation, how support has to be implemented in order to comply with the recently published EEAG. The two issues are intertwined and they are mostly relevant only in case of additional plants since they most likely imply the set-up of also a separate support scheme. In principle a tender will be required if the plants become operational as of 2017 to comply with state aid rules. In any case, transparency in project selection needs to be ensured.

The question of whether to choose Statistical Transfer or Joint Projects is closely related to public acceptance, as already mentioned. According to discussions incurred with representatives from Malta

[20] Art. 6 par. 2 2009/28/EC Directive

and Italy, relating the cooperation to specific plants may improve its acceptance since it is perceived as more mutually beneficial and concrete and not just a financial transfer to another country. However, despite the fact that Statistical Transfer does in principle not involve specific plants, it could be an option to refer to Statistical Transfer, if plants built before 2009 are selected for the cooperation. In this case the specific plant would only be mentioned in the cooperation agreement between the involved Member States and not in the notification to the EC.

Finally, when looking at risks involved in the two different set ups, Joint Projects could be potentially be more risky if they involve new installations, since there is a risk of plants not being built. From the point of view of the off-taking country there is also the risk that the actual production falls short of expectations. Additional optional Statistical Transfers might guarantee the target attainment for the off-taking country and would transfer the production risk to the host country.

However, the main element to be considered is the cost of cooperation. In principle a Statistical Transfer is assumed to be cheaper than a Joint Project since the timeframe for cooperation is shorter. However, if we introduce in the Statistical Transfer an element of technology specificity (which would meet Malta's preference) this might not be the case. If we compare costs exposed in figures 1 and 4 cooperation related to existing solar PV plants, these may be the same or even higher than a whole 20 years support of a new plant. This is mainly the case because past incentive levels have been significantly higher in the past. In turn, supporting a new plant for 20 years might result as the economically more attractive option from the perspective of the off-taking country.

Under which circumstances is cooperation economically attractive for Malta?

In order to assess the economic attractiveness of cooperation for the off-taking country we estimate the difference between support costs for domestic versus support costs for foreign RES. Moreover, we take into account that Malta only supports micro wind turbines. Thus, we focus on solar PV. The Maltese incentive scheme is regulated by subsidiary legislation 423.46[21] , which defines a feed-in tariff scheme until April 2015.

The incentive system foresees both investment grants (up to 50% of the installation costs) and a feed-in premium tariff for the electricity exported to the network. The two incentives need to be cumulated. If a plant receives a grant it can in addition receive the premium during 7 years, if it does not, the production support lasts 20 years.

Since Italy does not provide any investment grant for installations, we consider the case of feed-in premiums only with a 20 years incentive period.

A 1 MW PV plant in Malta is eligible to a 0.16 €/kWh tariff if it becomes operational before the 31st of October 2014 and 0.15 €/kWh from the 1st of November till the 30th of April. As already stated from the second semester of 2012 Italy switched from a premium system to feed-in tariff plus a premium for on-site consumption. The following table shows Italian tariffs from 2011 till 2012.

[21] SUBSIDIARY LEGISLATION 423.46, accessed from http://mra.org.mt/regulated-tariffs/feed-in-tariffs/

€/kWh	*Rooftop*	*Other*
2011 first semester ex law 129/2010	0.384	0.346
2011 first semester ex DM 6 August 2010	0.351	0.313
giu-11	0.314	0.277
lug-11	0.298	0.264
ago-11	0.28	0.25
set-11	0.278	0.243
ott-11	0.256	0.223
nov-11	0.233	0.201
dic-11	0.212	0.181
2012 first semester	0.182	0.156

As we can see, the Italian incentive system becomes competitive compared to Malta from plants that came into operation from December 2011. The gap got wider under the system put in place by Ministerial Decree 5th July 2012, which expired at the end of 2013.

Another way to consider legacy costs, even if based on a rough calculation, consists in dividing the total cost of support for PV (EUR 6.7 billion per year) by yearly electricity production (in 2013 22,146 GWh). This leads to an average cost of incentive of 0.302 € per kWh corresponding to a yearly expenditure of EUR 7 millions.

Following the assumptions of section 3.2, the net cost of incentives for an 18MW installation that benefits of tariffs in place in the second semester of 2014 would be EUR 717,384[22] per year (reduced to EUR 574,411 for a plant becoming operational in the first semester of 2015). The net present value in the first case, assuming a 5% discount rate and 20 years support, is EUR 8.398 million. If the plant becomes operational in the first semester of 2015, the net present value is reduced to EUR 6.725 million.

As a consequence cooperation involving new plants might be more cost-effective compared to cooperation involving already existing plants. However, the new plants development expose the off-taking country to full project risk. The difference between the two options may be considered as the cost of insuring against the risk of non-compliance with Malta's 2020 target.

[22] The hypotheses expressed in section 3.1 and 3.2 have to be taken into account, thus, table 1 does not refer to the 2014 tariffs, since the scheme already expired

5 Practical/legal arrangements

5.1 Legal provisions in Italy

Joint Projects are already transposed into Italian national law by Legislative Decree 28/2011, art. 35. Even if legislation specifically addresses the import of energy, changes are not required for exports. At the contrary Malta still does not have national legislation in place.

Statistical Transfers and Joint Projects with other Member States (Article 35 of Legislative Decree No 28/2011 as reported by 2013 Progress Report)

Article 35 of Legislative Decree No 28/2011 provides that agreements relating to these two [Joint Projects – Statistical Transfer] mechanisms will only be promoted if Italy falls short of its interim targets up to 2016.

The energy subject to Statistical Transfer, i.e. the share originating from the Joint Project, will be supported by an incentive whose value shall be lower than the weighted average value of the incentives granted to RES generating stations located in Italy, net of solar electricity production and incentives. The reference year for setting the amount of the incentive will be the year prior to conclusion of the agreement. Furthermore, the costs of implementing these projects will be covered from the electricity and natural gas tariffs, in a manner to be established by the Italian Electricity and Gas Authority after conclusion of the agreements.

The agreements shall be designed and implemented so as to ensure that the energy subject to Statistical Transfer, i.e. the share of energy from the Joint Project, contributes to attainment of Italy's targets under the Directive.

In case of Statistical Transfers, art. 37 of Legislative Decree 28/2011 states that Regions could promote them. It also rules that a Statistical Transfer cannot undermine individual regional capability to reach national targets of RES production. For this reason, Statistical Transfer requires an agreement from both the State and involved Region(s). Art. 2, par. 5 and 6 of Ministerial Decree 14/11/2011 enacts regional burden sharing of national renewable energy targets. It disciplines the use of Statistical Transfers between regions and with other Countries.

5.2 Amendments to national renewable energy laws

Italy does not foresee changes to national renewable energy laws for the moment. Malta may need to introduce laws allowing it to fund the support of cooperation.

5.1 State aid issues

When a new "support scheme" has to be put in place it should abide to new state aids rules, which from 2017 onward require competitive tender procedures for large installations. MSs have to indicate in the cooperation agreement the features of the scheme, specify the technical requirements of the desired installations (and exclusion grounds of economic operators such as those mentioned in art.

57 of 24/2014/EU Directive on Public Procurement), describe the selection process and make sure that conditions of transparency set out in paragraph 3.2.7 of the guidelines of state aid are fulfilled.

Using market premiums as required by the Guidelines on Environmental and Energy Aid 2014-2020 may in practice become somewhat difficult, as the electricity from the Joint Projects is supposed to be sold on the Italian, not on the Maltese market, so that for Malta there is a certain risk for Malta concerning the level of support. But this risk seems inherent in the system of market premiums anyways and thus tolerable.

Overall, the State aid concerns relating to this case study are thus rather limited. In order to avoid state aid issues for option 2, a transparent process of project selection needs to be in place. If project size exceeds the given thresholds (1 MW for PV or 6 MW for wind) from 2017 support has to be granted through an auction unless conditions of par. 126 of State Guidelines apply. In this case there will thus be the additional challenge of organising a competitive selection process in a context with a potentially limited number of participants. However, using an auction scheme to select the projects would reduce the risk of state aid issues.

5.2 Other legal barriers

As mentioned above, for the calculation of the market premiums to be paid to the Joint Project Operator, the Italian market prices would be used. In this regard, Italy would need to provide Malta with all the relevant information about its market prices.

Similarly, it is assumed that the electricity – as it is fed into the Italian grid – would have to pay grid tariffs and imbalances costs according to Italian law.

Another issue to be further developed, but that goes beyond the purpose of this study, is the transfer of carbon credits related to the RES share which counts for the Maltese RES target. So, it has to be considered that if the RES share is paid by the Maltese government, the related carbon credits should be transferred as well.

6 Conclusions

In this case study we discussed the issues revolving around the Cooperation Mechanisms in reverse order compared to a standard analysis: instead of starting from the institutional framework of cooperation as defined by the RES-Directive, we started the discussion from the status of plants, which are used for the cooperation, thereby meeting Malta's and Italy's interest. Two possible options have been analysed:

1. Existing plant[23] already receiving incentives;
2. Development of a new plant;

In principle the first option, which we may classify as a Statistical Transfer, should be more cost effective. The study demonstrated to the contrary that due to legacy costs of past incentive schemes, especially if the cooperation focus on specific technologies such as solar PV, developing new installations might be more cost-efficient. However, the latter option is slightly riskier as the risk of non-implementation of a specific plant exists. In fact, the off-taking country would be exposed both to the development risk and the risk of non-compliance with target. If the two Member States were to focus cooperation on PV, according to the estimate made in previous paragraphs, supporting existing plants may lead to a yearly cost of about EUR 7 millions, whereas net present value of 20 years support for new plants is likely to figure around EUR 6.7 millions (however, these support costs will differ, if support levels are determined in a competitive tender).

The extra cost for using an existing plant for the cooperation may be considered as the cost of insuring against the risk of non-compliance with the 2020 target (which might occur, if a plant is not built). However, since the cost of non-compliance is unknown we are not able to assess its economic convenience.

[23] That came operational after the 25th of June 2009

7 Annex: List of open issues

It has become clear that there is a list of issues and questions between Italy and Malta which would need to be addressed prior to closing a cooperation agreement. The additional questions not yet dealt with in this case study relate to various topics and include:

- Obligations of the Parties, for example:
    - Does Malta have to compensate Italy for the capacity installed on Italian territory (as e.g. Italy cannot use the land for own purposes etc.)?
    - Or do the indirect advantages for Italy sufficiently compensate Italy for such indirect costs (labour, development etc.)?
    - Does Italy have to give Malta a rebate in the end (as indirect benefits larger than costs)?
- Institutional organization, such as:
    - Which organizations/authorities will mainly be in charge of the cooperation?
    - Where will the contact points be situated?
- Financial arrangements, for example:
    - Who pays the support to the project, i.e. who enters into a contract with the Joint Project Operator? Malta paying all the support to the Italian project?
- Risk sharing:
    - Can penalties be included, e.g. if Malta fails to reach its target because Italy does not cooperate as planned? How high can such penalties be? (Likeliness of infringement action and level of penalties in the course of such infringement actions both to be considered).
    - Does the Joint Project Operator have a claim against the Member States? And if so against which (for support, or for getting licensed etc.)?
    - Can Italy turn to Malta for damages when Malta fails to support the project as agreed? Does Italy have to support the project in such case?

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