

# Exploiting Solar Energy - Evaluation of Feed-in Tariff Schemes for Photovoltaics

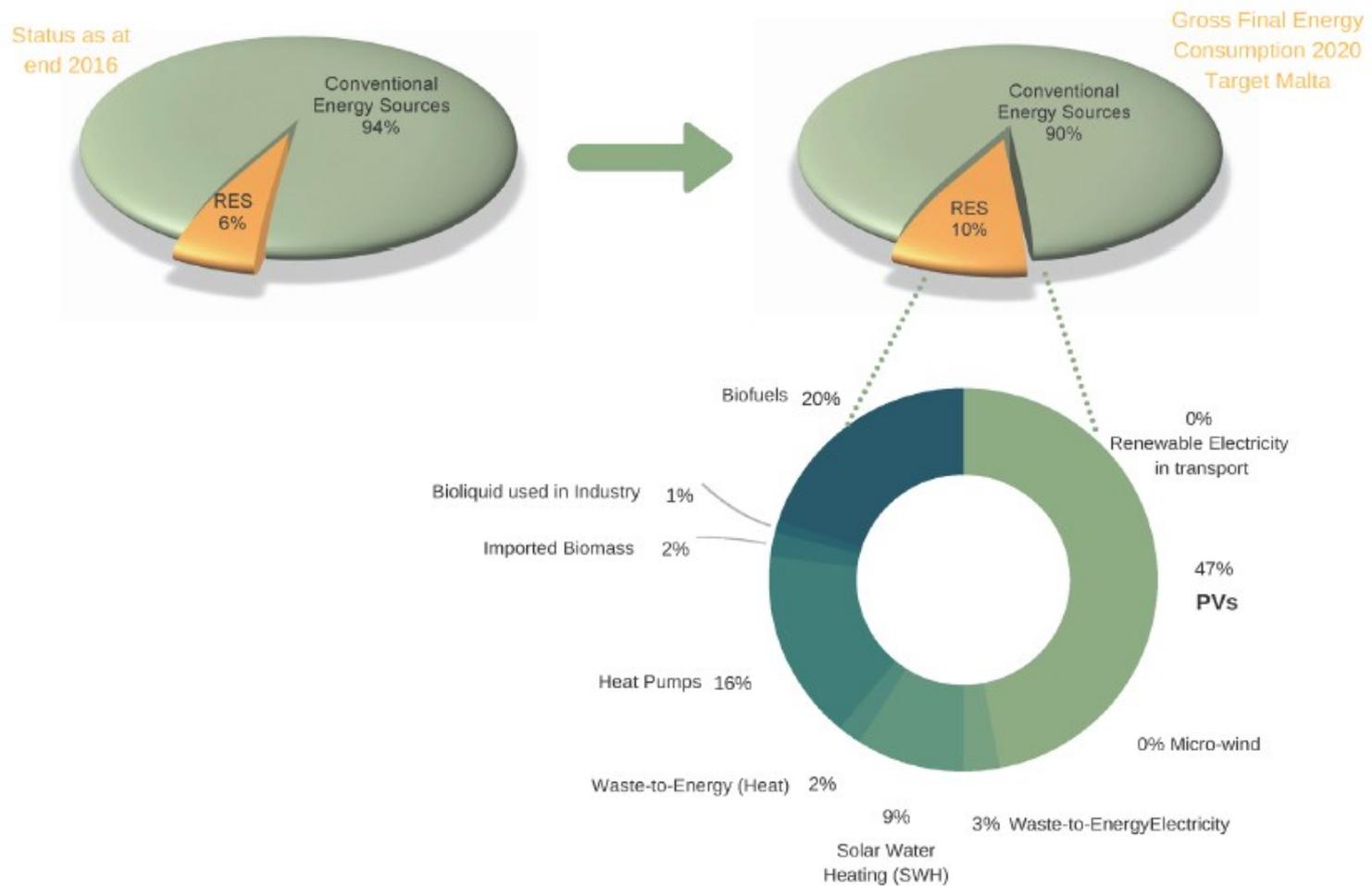
March 2018

# Presentation objectives

- Background
- Main audit question and Audit Objectives
- Audit Methodology and Limitations
- Audit Findings
- Conclusions
- Recommendations
- Lessons learnt

# Background (1)

- Malta's 10% RED target by end 2020 (EU 20%)



# Background (2)

- Between 2010 and 2017, FiT related expenditure amounted to around €84 million for a PV RES capacity of 94 MWp
- However, this figure has to be partly offset by the savings of €38 million related to the non-generation of the same amount of energy through conventional means
- Moreover, such an expense should also be offset theoretically by other intrinsic benefits of indigenous renewable energy generation e.g. better air quality, improved security of energy supplies as well as generation of green jobs

# Main audit question

Are Governmental Entities responsible for the planning and administration of the PV FiT Schemes in Malta, adequately supporting the growth of RES in view of attaining the 2020 target?

# Audit Objectives

The audit's objectives sought to determine the degree to which:

- measures listed in the National Renewable Energy Action Plan (NREAP) 2015-2020 were implemented
- uptake of PV FiT Schemes was positive or otherwise
- economic interests of the general public were safeguarded
- additional FiT costs incurred by Government represent value for money
- cooperation mechanisms may have offered a more cost-effective option to attain the 2020 target

## Audit Methodology

- Documentation review
- Semi-structured interviews
- Data analysis
- Benchmarking
- Audit Period – Data as at end of December 2017

## Audit Limitations

- Quality and timeliness of data
- Data was not structured in a manner which permits specific analysis on individual PV FiT schemes
- Consequently, most of the values and evaluations were based on the ‘expected’ generation values

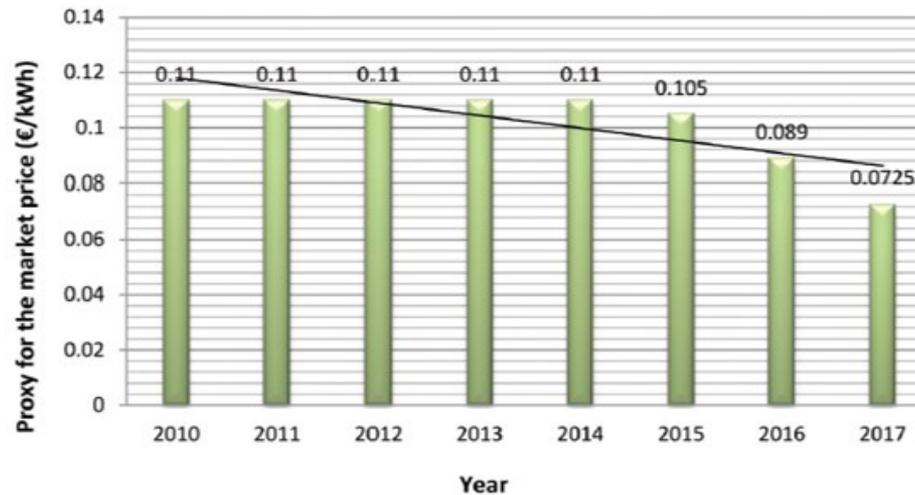
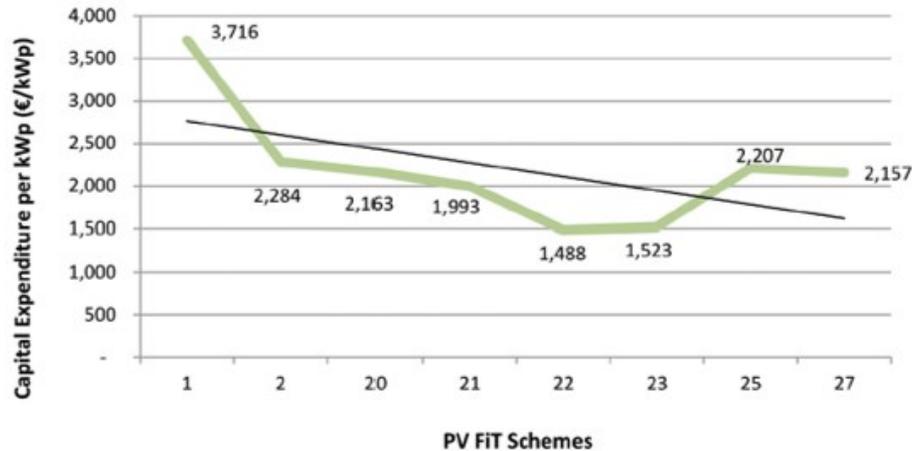
# The implementation status of most of the NREAP 2015-2020 measures remains ongoing

Type of NREAP measures	No. of NREAP measures	Status - <u>Pending</u>	Status - <u>Ongoing</u>	Status - <u>Completed</u>
<b>Strategic</b>	12	2	7	3
<b>PV-specific</b>	7	0	7	0
<b>Cooperation mechanisms</b>	3	2	1	0
<b>Total (No.)</b>	<b>22</b>	<b>4</b>	<b>15</b>	<b>3</b>
<b>Total (%)</b>	<b>100.0</b>	<b>18.2</b>	<b>68.2</b>	<b>13.6</b>

# Uptake of the various FiT Schemes for PVs was generally positive

FiT Scheme (No.)	FiT Scheme specific target (kWp)	Estimated allocated PV capacity (kWp)	Difference between FiT Scheme specific target and the estimated allocation		FiT Schemes' Uptake %
			(kWp)	%	
15	4,000	4,000	0	0	100
16	4,000	4,000	0	0	100
17	4,000	4,000	0	0	100
18	4,000	3,927	(73)	(1.8)	98.2
19	6,000	5,481	(519)	(8.7)	91.3
21	11,000	9,702	(1,298)	(11.8)	88.2
26	8,000	8,000	0	0	100
28	4,200	3,256	(944)	(22.5)	77.5
29	18,000	18,000	0	0	100

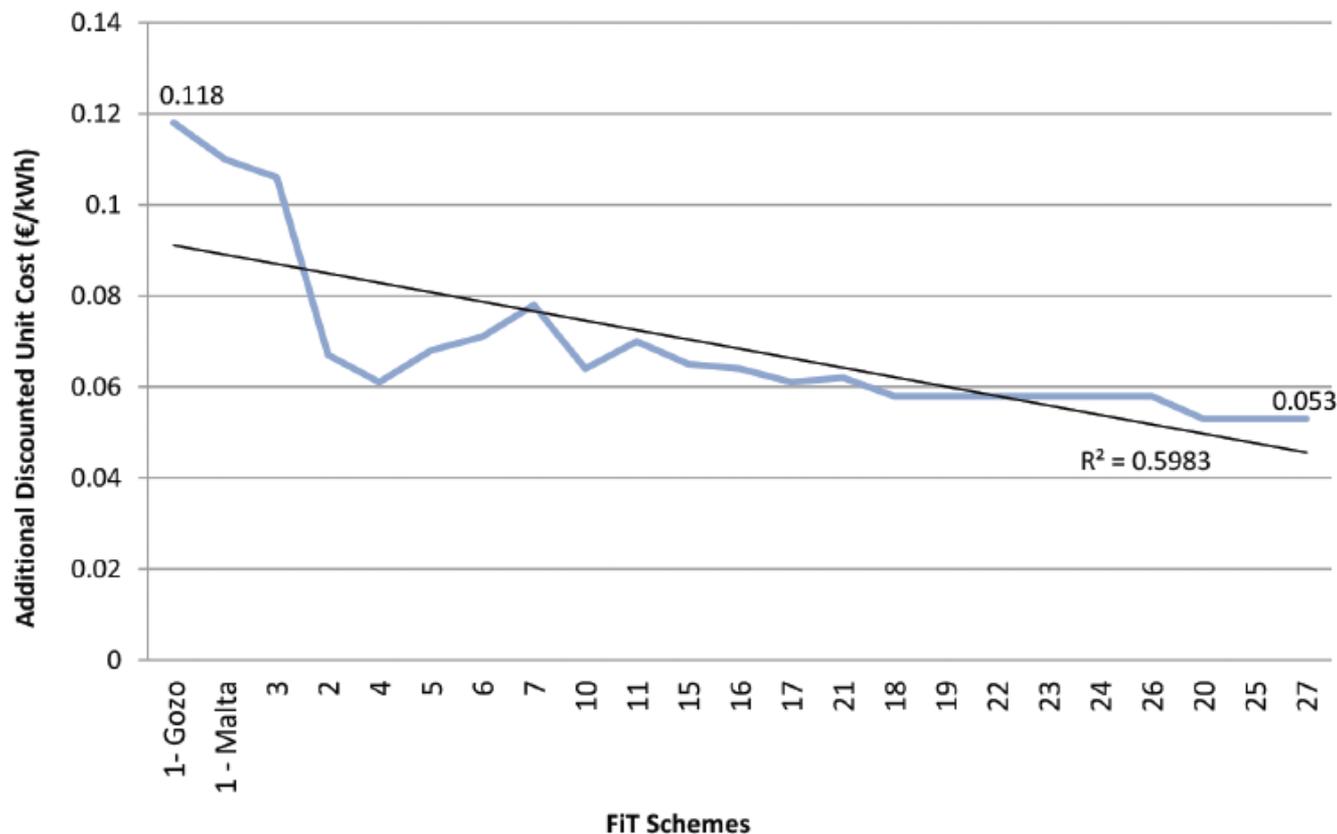
# Decrease in FiT coincided with cheaper capital costs and downward trend in the proxy for the market price



# The payback period for FiT Schemes' subscribers ranged from 5 to 9 years

Scheme	Feed-in Tariff (FiT)		Capital Outlay	Grant on Investment	Payback Period
	Rate (€/kWh)	FiT Period (No. of Years)	(€)	(€)	(Year)
1- Malta (Sep 2010 to Dec2012)	0.25	8	30,019,041	12,187,073	8
1 – Gozo (Sep 2010 to Dec 2012)	0.28	8	4,565,018	1,843,937	7
2 (Jan 2013 to Apr 2015)	0.22	6	53,493,198	20,535,148	5
20 (Jul 2015 to Jun 2016)	0.16,5	6	15,540,492	4,813,766	9
25 (Jul 2015 to Dec 2016)	0.16,5	6	17,994,464	5,481,821	9
27 (Jul 2017 to Dec 2018)	0.16,5	6	3,981,757	1,226,416	8

# Discounted additional costs incurred by Government to support development of PVs through FiT Schemes is on a downward trend

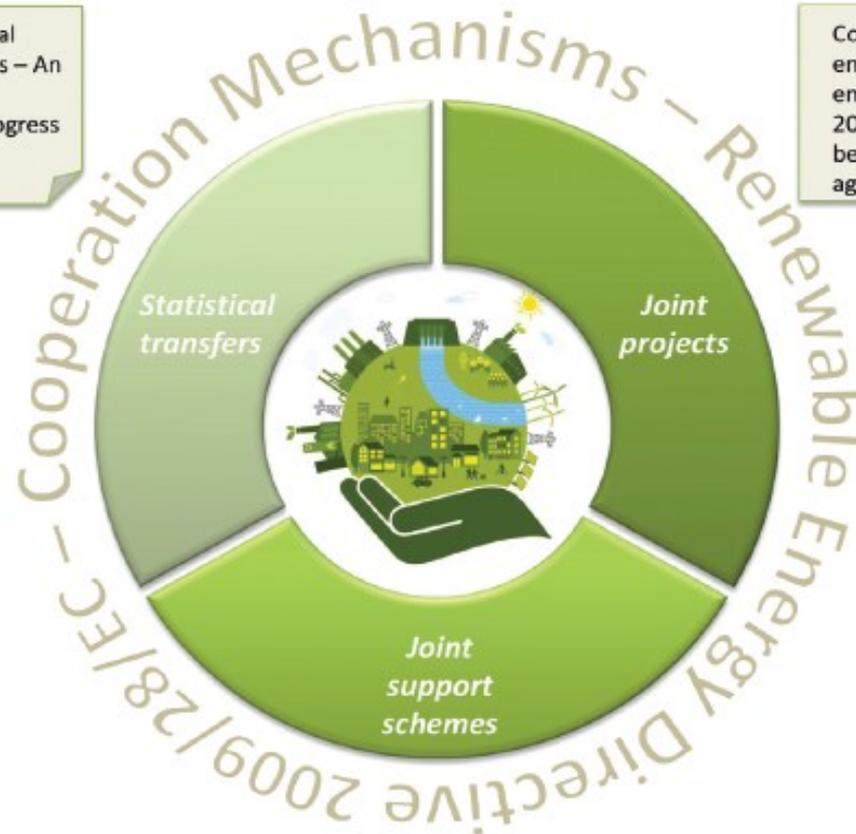


*Government is increasingly being able to incentivize Schemes' subscribers to invest in PVs at lower FiTs*

# Cooperation mechanisms emanating from the Renewable Energy Directive 2009/28/EC (1)

Accounting procedure – No actual renewable energy changes hands – An amount of renewable energy is deducted from one country's progress towards its target and added to another's.

Countries can co-fund a renewable energy project and share the resulting energy for the purpose of meeting the 2020 targets – renewable energy has to be transferred physically in case of an agreement with a Non-EU MS.



Two or more EU countries can co-fund a joint support scheme to spur renewable energy production in one or both of their territories.

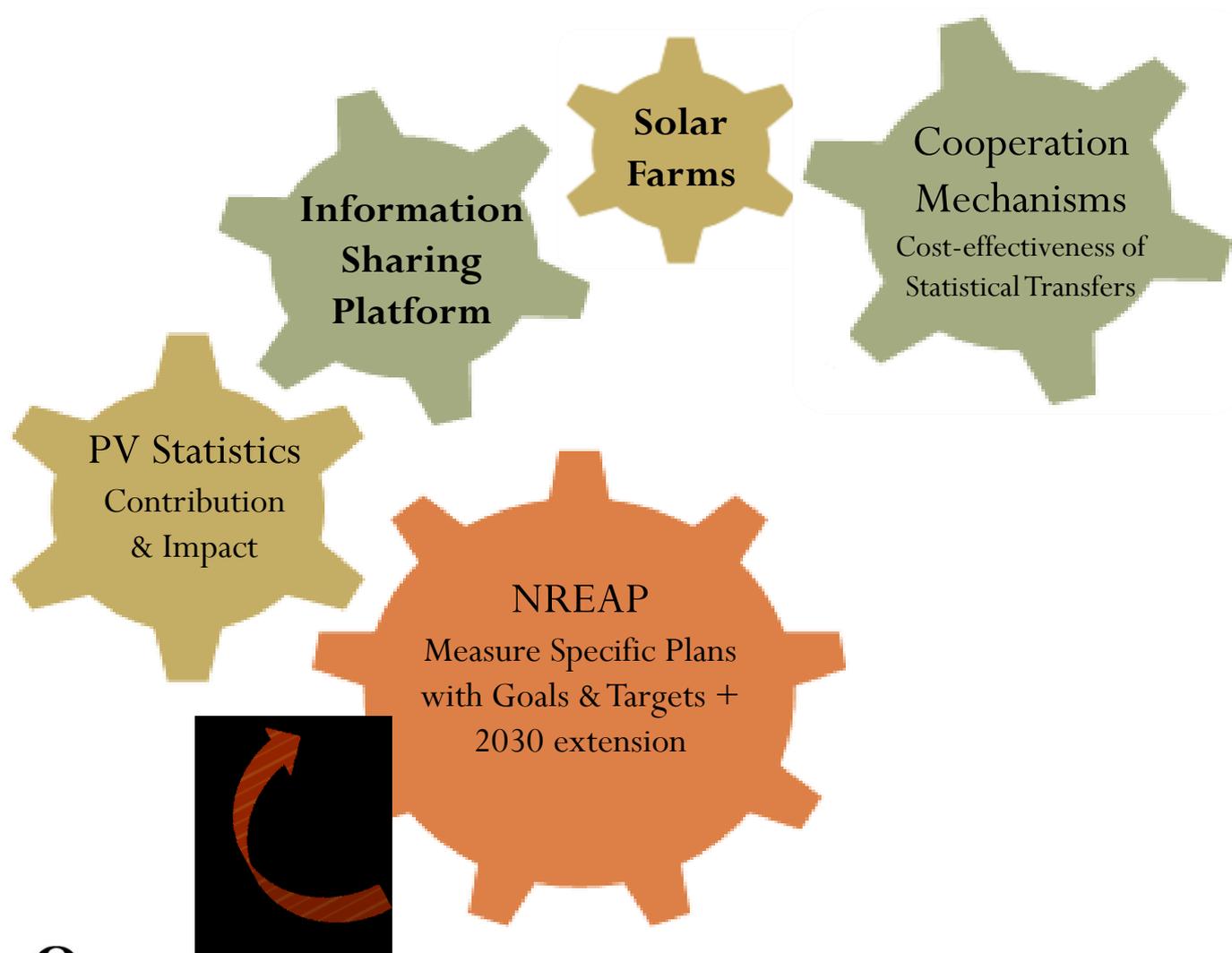
# Cooperation mechanisms emanating from the Renewable Energy Directive 2009/28/EC (2)

- **Statistical transfers** - Studies are currently being undertaken to determine the cost-effectiveness of this policy option and to assess from where it is best to purchase such transfers.
- **Joint Projects** - Projections show that joint projects would be a more expensive alternative to indigenous PV RES generation
- **Joint Support Schemes** – At the time of the audit, no work has been undertaken with respect to this option

## Conclusion

- The current indigenous approach adopted to attain the 10% EU 2020 obligatory target for renewable energy generation out of the total consumption, has yielded various environmental, economic and social benefits
- Nevertheless, the opportunity exists for National Authorities to make use of cooperation mechanisms, particularly statistical transfers, to ascertain the attainment of National and EU obligatory target through a more cost-effective solution

# Recommendations



# Lessons Learnt

- In some instances there were limitations in data and therefore we had to make a number of assumptions.
- During this performance audit, we made use of a number of experts in different areas, mainly financial, economical and technical aspects.
- In cases, audit was dependent on studies undertaken by auditees. This risk was mitigated by reviewing the methodologies and assumptions made in these studies.

# Thank You

Report can be accessed from:

<https://nao.gov.mt/en/press-releases/4/187/performance-audit-evaluation-of-feed-in-tarif>