

Photovoltaic tenders and introduction of direct sales on the electricity market

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Cédric Bozonnat

Ministère de l'Environnement, de l'Énergie et de la Mer

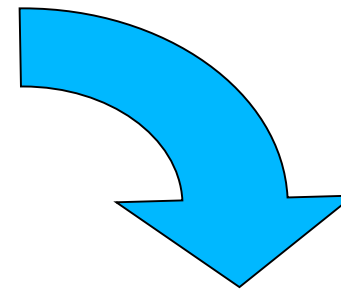
Direction générale de l'énergie et du climat



Photovoltaic tenders: what's new ?

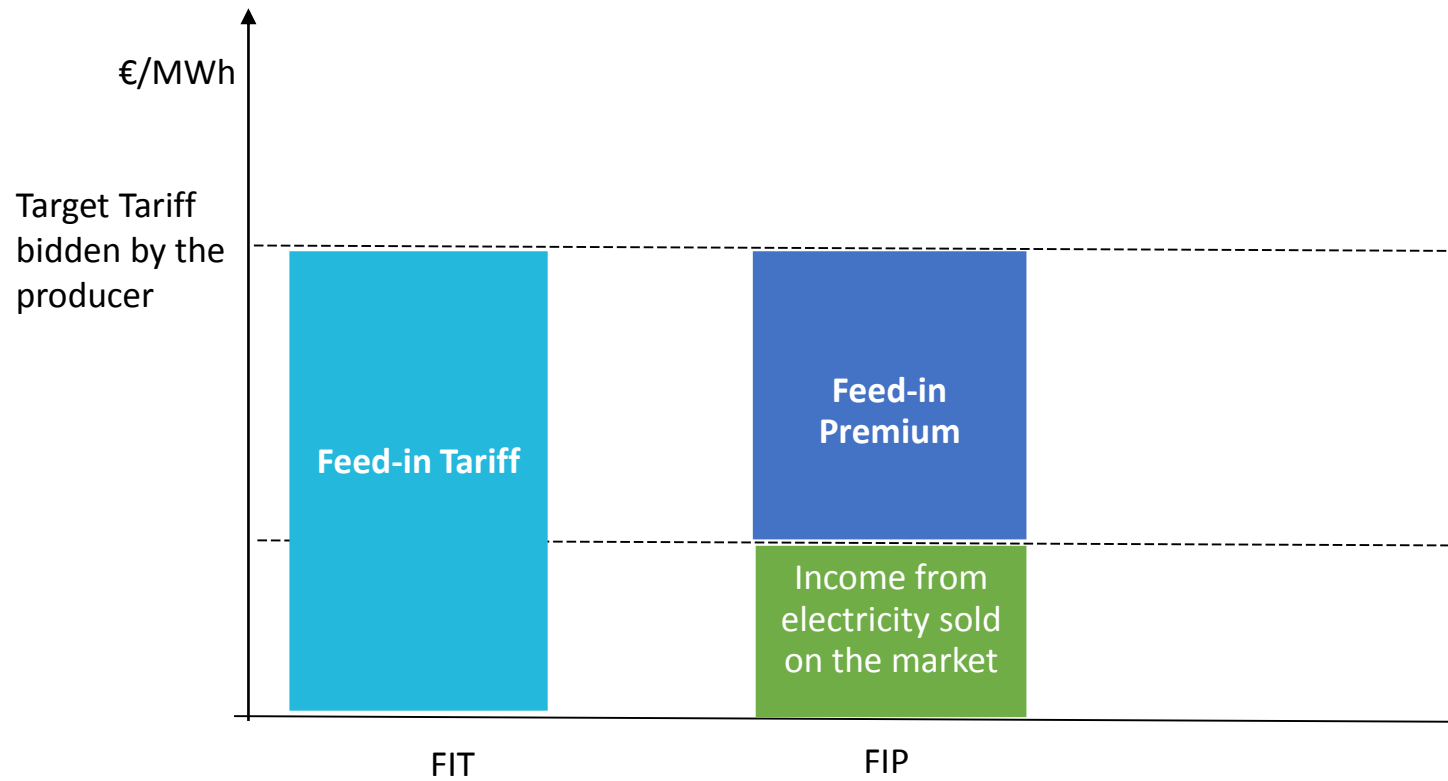
FIT : Feed-in Tariff
FIP : Feed-in Premium

Former Mechanism		
	Rooftop	Ground
100 – 250 kWc	Simplified Tender (120 MW and 240 MW) FIT	
250 – 500 kWc	Ordinary Tender – Families 1 and 3 (200 MW) FIT	
500 kWc – 3.5 MWc		Ordinary Tender – Family 2 (200 and 600 MW) FIT
3.5 – 12 MWc		



New Mechanism		
	Rooftop	Ground
100 – 250 kWc	« Rooftop » Tender (450 MW) FIT	
250 – 500 kWc		
500 kWc – 8 MWc	FIP	« Ground » Tender (1000 MW) FIP
8 – 17 MWc		

Photovoltaic tenders: new financial support

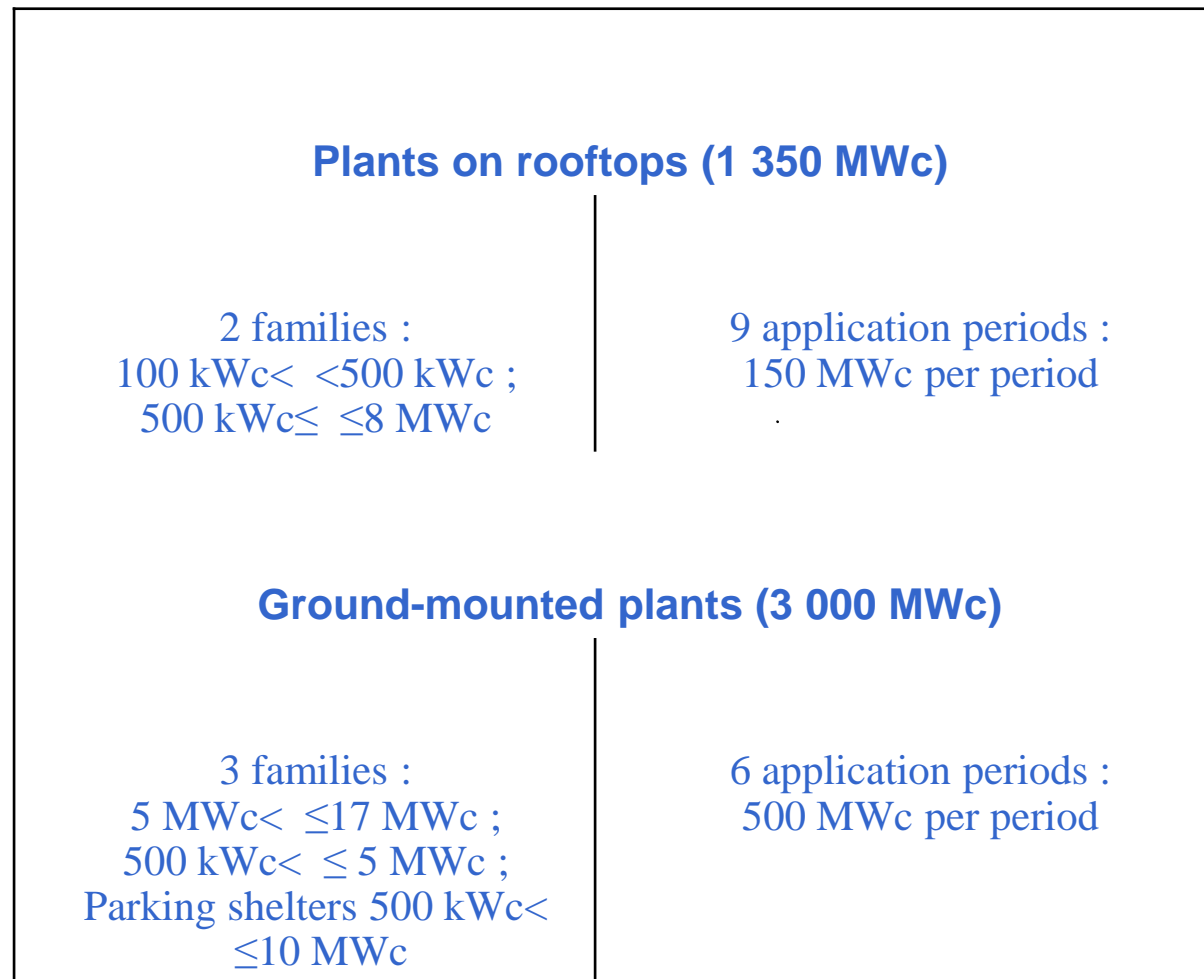


How did we set up the PV Tenders ?



Photovoltaic tenders: multi-annual scope

- April 2016: new objectives for PV (10.2 GW in 2018 ; 18.2-20.2 GW in 2023).
- August 2016: launch of 2 series of tenders, spanning 3 years each.
- Multi-annual tenders help meeting goals and provide visibility.



Photovoltaic tenders: eligibility criteria

- **Power limitations:** depending on each family.
- **Installation's novelty:** work on the project has not started yet prior to the tender (european guidelines, incentive effect).
- **Implantation conditions** (only for « ground-mounted » tender):

1st case: field registered as « urbanized » or « to urbanize ».

2nd case: field registered in a natural zone where renewable energies can be developed.

3rd case (environmental bonus): degraded land (landfills, industrial brownfield, polluted area, water body, etc.)

Photovoltaic tenders: ranking

➤ Ground tender:

Criteria	Maximum Score	
	Families 1 and 2	Family 3
Price	70	70
Carbon impact	21	30
Environmental Bonus	9	-
TOTAL	100	100

➤ Rooftop tender:

Criteria	Maximum Score
	Families 1 and 2
Price	70
Carbon impact	30
TOTAL	100

Photovoltaic tenders: ranking

➤ **Price:**
$$NP = NP_0 \times \frac{P_{sup} - P}{P_{sup} - P_{inf}}$$

With $NP_0 = 70$

$$P_{sup} = [110 - 150] \text{ €/MWh}$$

$$P_{inf} = [50 - 95] \text{ €/MWh}$$

➤ **Carbon Impact:**
$$NC = NC_0 \times \left[\frac{ECS_{sup} - ECS}{ECS_{sup} - ECS_{inf}} \right]$$

With $NC_0 = 30$

$$ECS_{sup} = 700 \text{ kgCO}_2/\text{kWc}$$

$$ECS_{inf} = 100 \text{ kgCO}_2/\text{kWc}$$

ECS stands for « Simplified Carbon Evaluation ». The method is described in the tender documentation. It has to be delivered by an accredited organism.

Photovoltaic tenders: crowdfunding

- A 3 €/MWh bonus is available for candidates engaged in crowdfunding:

The applicant is a territorial authority (or a bundle of territorial authorities).

OR the applicant is a corporation which at least 40 % of the capital is owned by at least 20 different people or a territorial authority.

OR the applicant is a cooperative society which at least 40 % of the capital is owned by at least 20 different people or a territorial authority.

OR the applicant commits to maintain 40 % of its capital owned by at least 20 different people or a territorial authority.

- If the commitment is not fulfilled, a penalty of -3 €/MWh is applied.

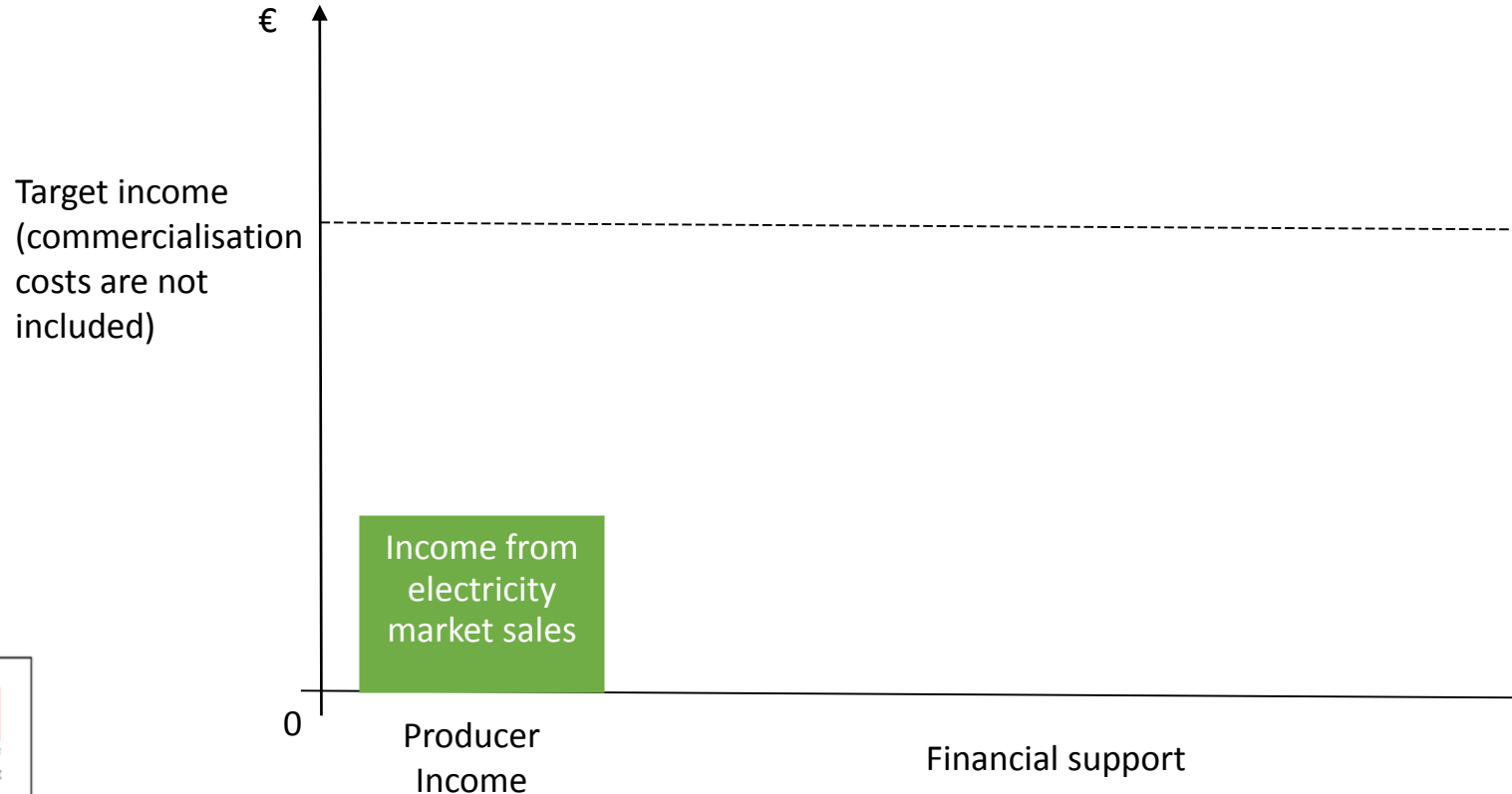


How to calculate a Feed-in Premium ?



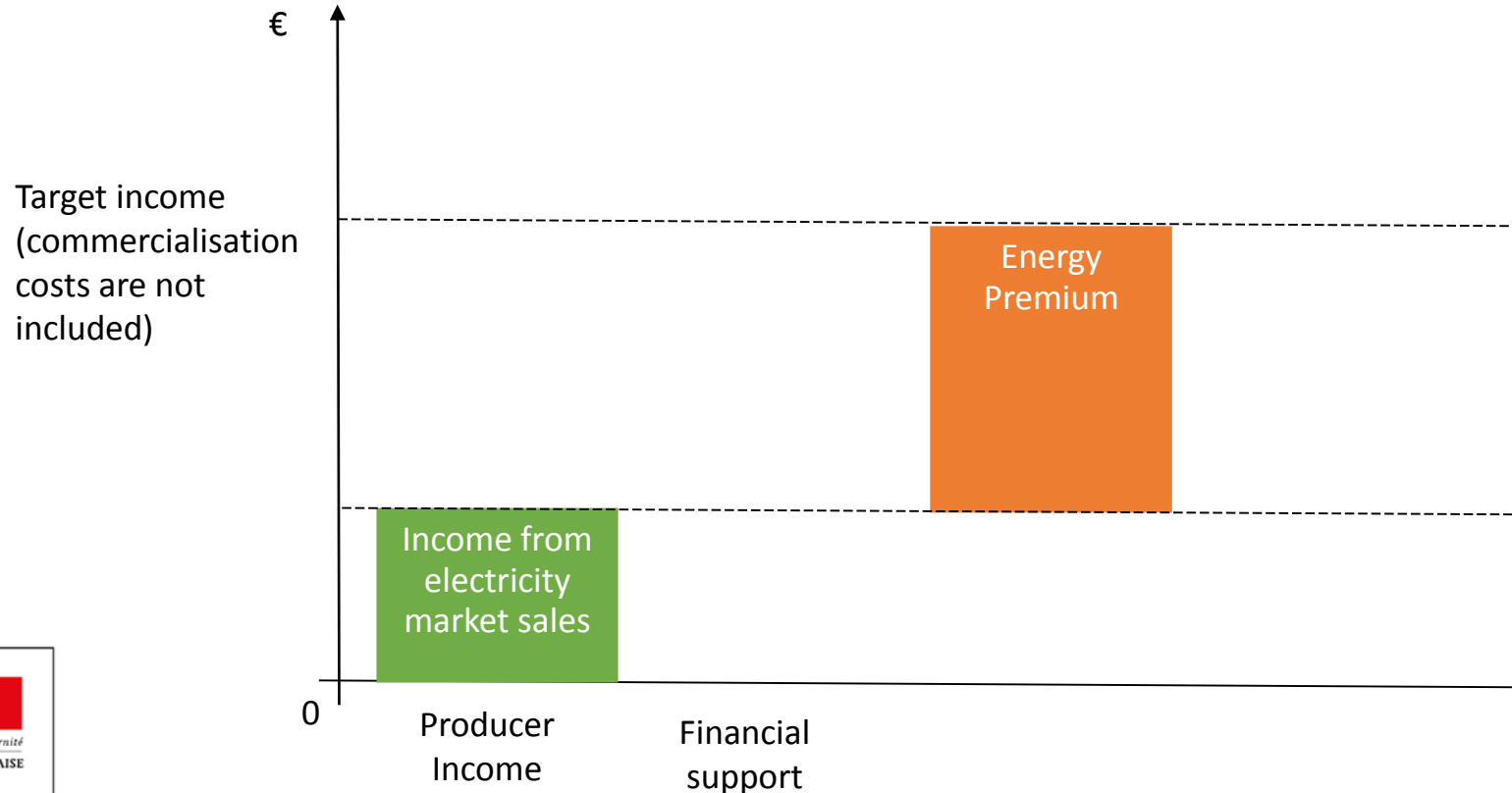
Feed-in Premium – Global Definition

- The FIP is obtained by adding an « **energy premium** » and a « **management premium** ». Revenues on the capacity market are then deducted.
- **Sliding FIP**: the premium is not fixed but depends on market prices.



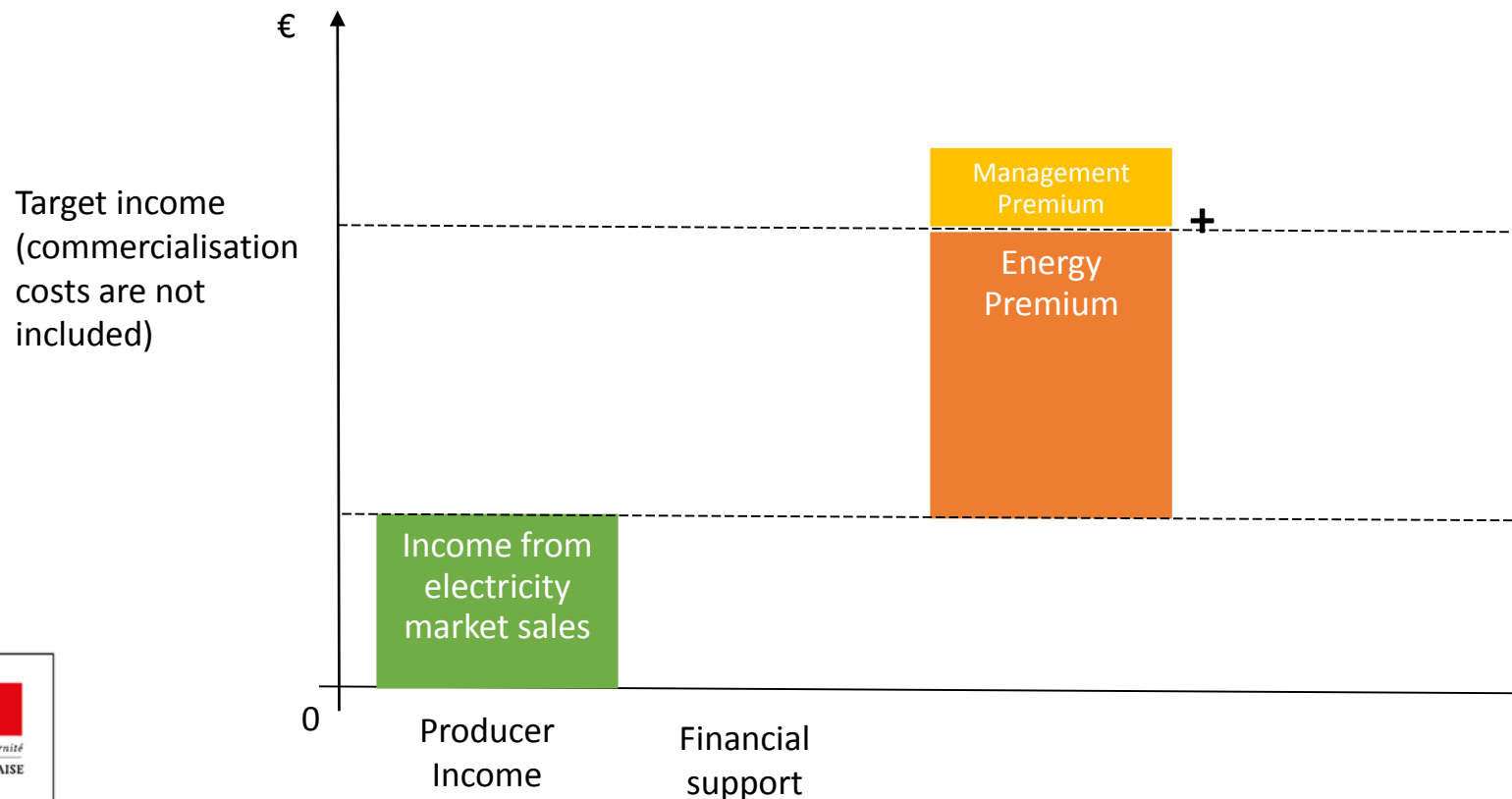
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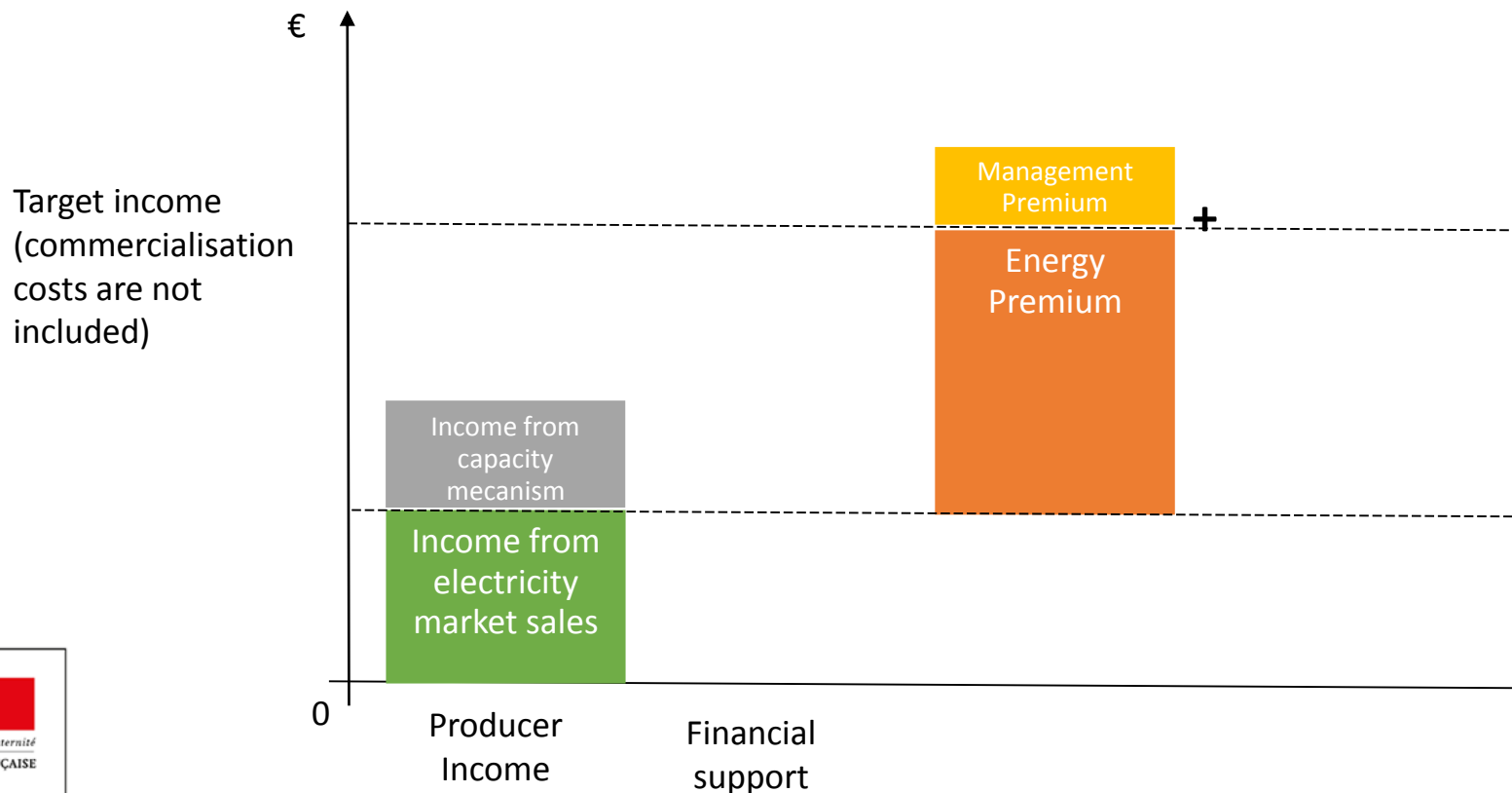
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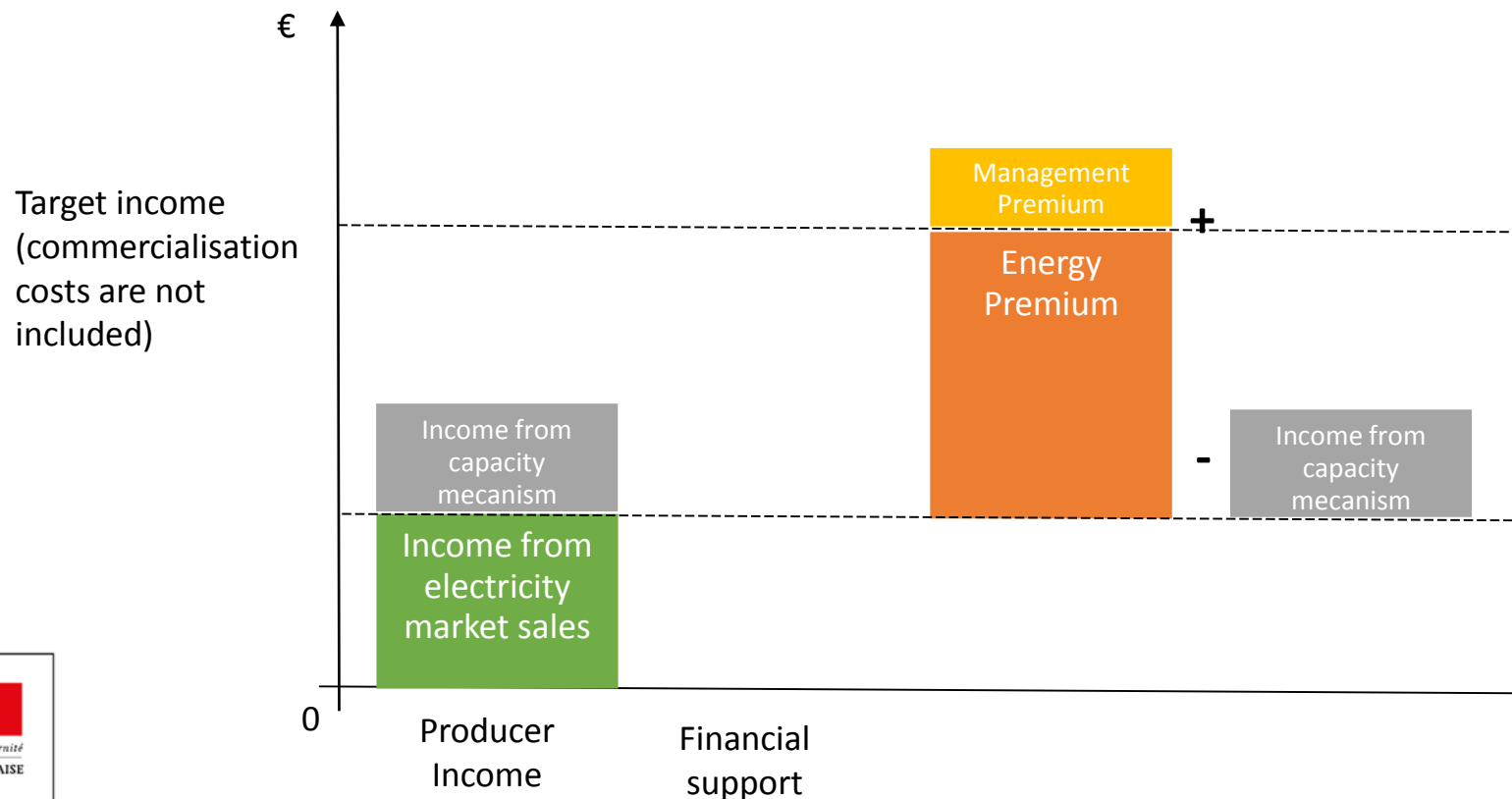
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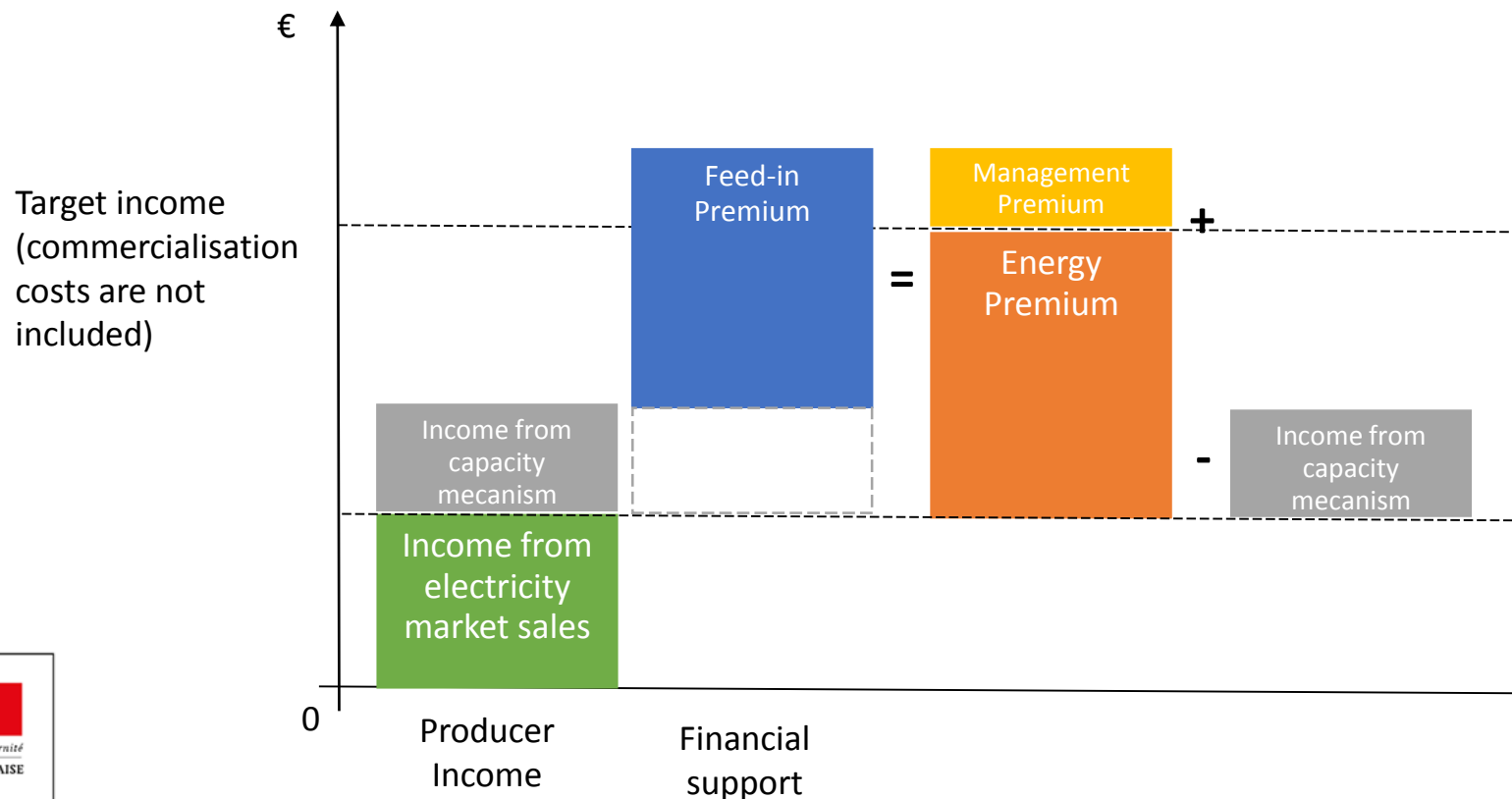
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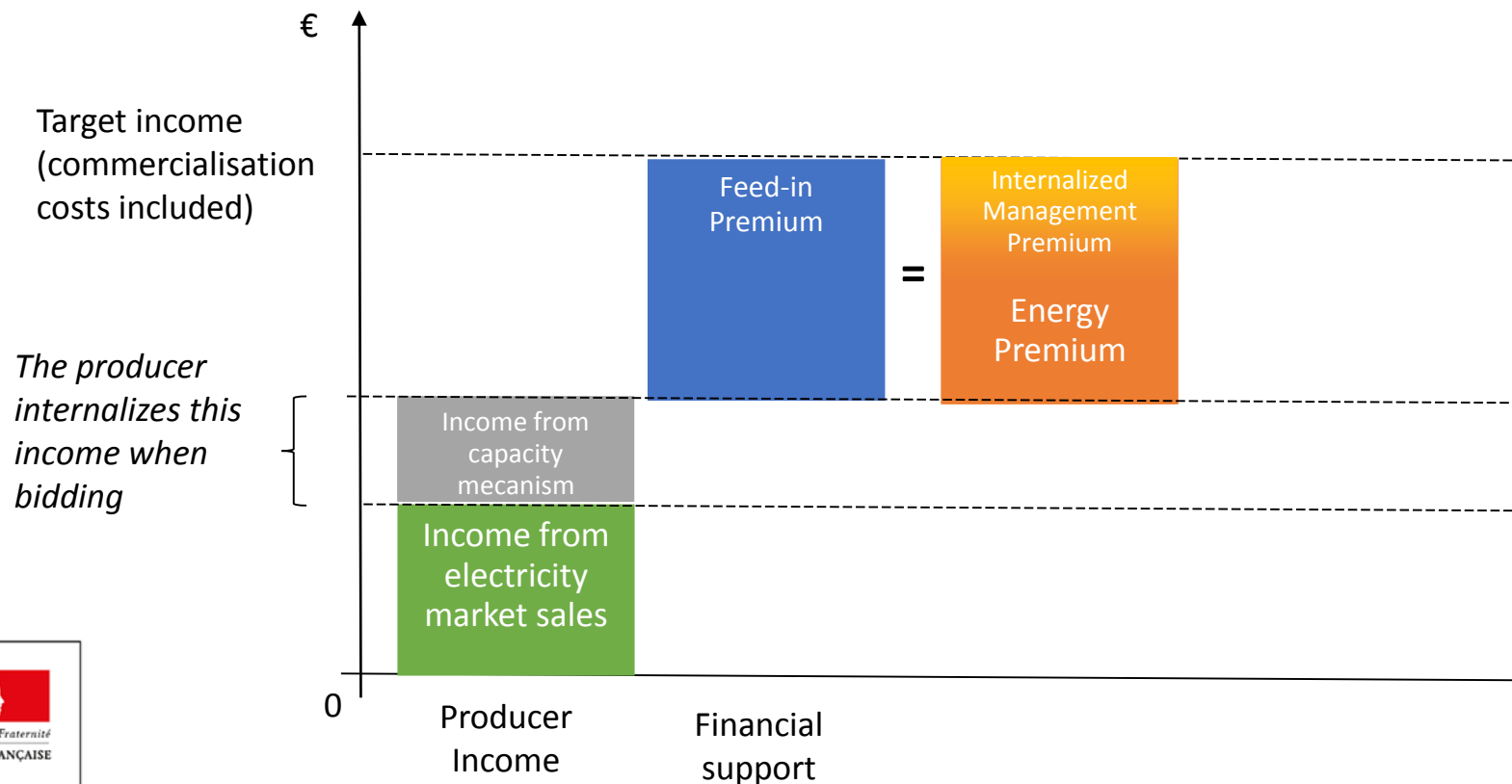
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Feed-in Premium – PV Tenders

- For photovoltaic tenders, the FIP is equal to the « **energy premium** ». Revenues on the capacity market can be internalized by the producer, as well as the management premium.



Feed-in Premium – PV Tenders

- The FIP is equal for a given year to the Energy Premium:

$$= \sum_{i=1}^{12} E_i \cdot (T - M_{0i})$$

With :

E_i is the production delivered to the grid during the month i and during positive spot (day-ahead) prices on the spot market.

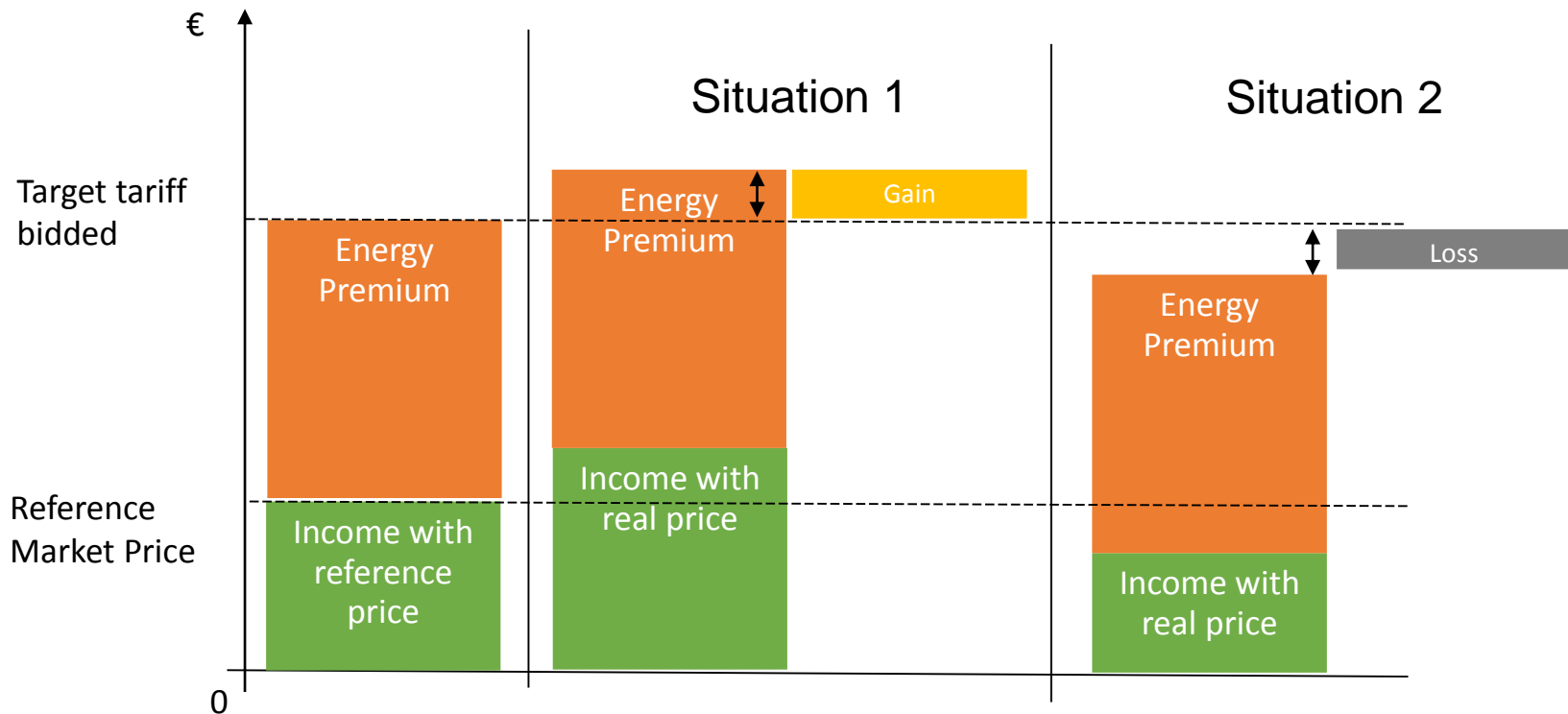
T is the price bidded by the applicant.

M_{0i} is the market reference price for the month i : calculated as the monthly mean of day-ahead spot prices.

- **The production is capped at:**
 - 1600 peak sun-hours for classic installations.
 - 2200 peak sun-hours for installations using tracking systems.

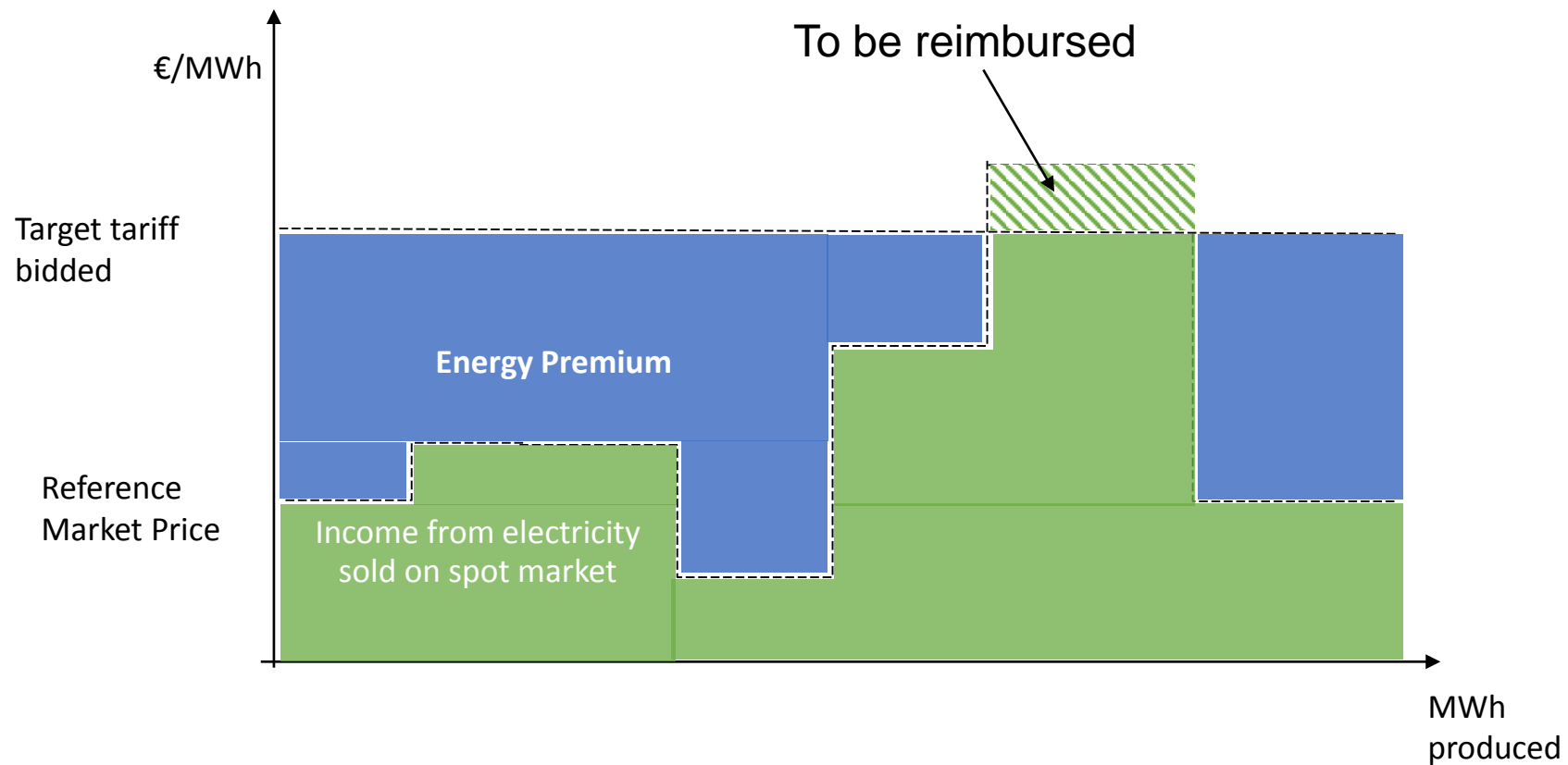
Feed-in Premium – PV Tenders

- **Potential extra-benefit** for the producer if electricity is sold at a better price than the market mean:



Feed-in Premium – Energy Premium

- The energy premium is **symmetric**:



Feed-in Premium – Negative Prices Occurrence

- Production during negative prices occurring during peak time is not eligible to the FIP.
- After 15 hours of such negative prices, an allowance is set for installations which didn't produce during negative prices occurring during peak time:
 - Compensation = $0.5 T_e \cdot P \cdot n_{\text{negative prices}}$
with T_e the tariff bidded.
 P the installation power.
 $n_{\text{negative prices}}$ is the total number of hours when the installation didn't produce and prices were negative.
 - Because PV is intermittent, every hour is weighted (factor 0.5).

Any Questions ?

