Overview MACSE Business Model v1.0

This simplified busines model has the scope of giving a clear output regarding the money flow of the MACSE.

With simplified and advance technical input the business model takes into account the yearly revenue + the energy shifting revenue.

Input BID	Premio di Riserva (Terna threshold bid)	€ / MWh / year	€ 42.000,00
	Bid	€ / MWh / year	€ 40.000,00
	Duration of Contract in years	year	15

	System Technical Assumptions			
System Inputs	BESS Equipment CAPEX	€ / MWh	150.000	
	Civil Works and Authorization	€ / MWh	50.000	
	Weight of OPEX %	€ / MWh	2.250	1,5%
	Accepted Capacity	MWh	100	
	Charge	h	4	0,960
	Discharge	h	4	0,960
	Round Trip Efficiency	%	80	1,062
Advanced Technical Inputs	Solution RTE (@PCS output)	%	93,40%	**80,00%**
	LV Cable loss	%	2,00%	
	LV/MV Transformation loss (STS)	%	2,00%	
	MV Cable loss	%	2,00%	
	MV/HV Transformer loss	%	1,50%	
	Required Oversizing	%	124,57%	
	Availability	%	99,00%	

Plant RTE (excl. Aux.)

	Energy Shifting Assumptions		
Enegy Shifting input	**Electricity Selling Price [€/MWh]**	€ / MWh	80
	Electricity Buying Price [€/MWh]	€ / MWh	60
1	**Recognized share by Terna**	%	20%

	Summary Results		
Output	BESS Accepted Capacity	MWh	100
	Total BESS Equipment CAPEX	€ / MWh	200.000 €
	Tota BESS Capex (including oversizing)	€	24.914.616 €
	Total Correction Coefficient		0,979
	Adjusted offered BID	€ / MWh	€ 39.149,57
	Revenue	**€ / MWh**	**€**
	Fee from MACSE in 15 years	587.244	58.724.352
	Energy Shifting Revenue in 15 years	3.795	379.539
	Opex in 15 Years	33.750	3.375.000
	TOTAL REVENUE OVER CONTRACT DURATION	557.289	55.728.891

Input section

There are four main section for inputs in the Macse Estimation Calculator:

1) **Input BID:**
dedicated to the price offered by the owner

2) **System Inputs:**
where to place information regarding capex of the system, Opex, technical parameters (charge/discharge)

3) **Advance Technical Inputs**:
detailed section for those BESS systems where more info are needed

4) **Energy Shifting**:
based on assumption of the revenue that can be done from energy shifting

Input BID	Terna threshold price "Premio di Riserva"	€ / MWh / year	€ 42.000,00	
	Estimated Best Bid Threshold	€ / MWh / year	€ 40.000,00	
	Duration of Contract in years	year	15	

	System Technical Assumptions			
System Inputs	BESS Equipment CAPEX	€ / MWh	150.000	
	Civil Works and Authorization	€ / MWh	50.000	
	Weight of OPEX %	€ / MWh	2.250	1,5%
	Accepted Capacity	MWh	100	
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Advanced Technical Inputs	Solution RTE (@PCS output)	%	93,40%	**80,00%**	**Plant RTE (excl. Aux.)**
	LV Cable loss	%	2,00%		
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	MV Cable loss	%	2,00%		
	MV/HV Transformer loss	%	1,50%		
	Required Oversizing	%	124,57%		
	Availability	%	99,00%		

	Energy Shifting Assumptions		
Enegy Shifting input	**Electricity Selling Price [€/MWh]**	€ / MWh	80
	Electricity Buying Price [€/MWh]	€ / MWh	60
	Recognized share by Terna	%	20%

Input Bid

Premio di Riserva (Terna threshold bid)	€ / MWh / year	€	42.000,00
Bid	€ / MWh / year	€	40.000,00
Duration of Contract in years	year		15

«Premio di riserva»: maximum value that a bid from operator can reach after the correction with technical parameter. This value is defined by Terna and cannot be modified

BID: the value expressed in € / MWh / year that each operator will offer to participate at the auction. This value will be then adjested in the otput section after the technical parameters are inserted.

Duration of Contracts: number of year of the contract with Terna. So far the contract duration will be 15 years.

System technical Inputs

System Technical Assumptions			
BESS Equipment CAPEX	€ / MWh	150.000	
Civil Works and Authorization	€ / MWh	50.000	
Weight of OPEX %	€ / MWh	2.250	1,5%
Accepted Capacity	MWh	100	
Charge	h	4	0,960
Discharge	h	4	0,960
Round Trip Efficiency	%	80	1,062

BESS Equipment Capex:

The cost of the system (Battery container, PCS, MV Staion) in € / MWh

Civil workds and authorization:
civil works includes land preparation, concrete pouring, cabling etc.

Yearly OPEX:
can be defined as % of the CAPEX or with a € / MWh value

Accepted capacity: capacity in MWH sected by the Auction

Design Parameters: Charge and discharge depends on the project design. RTE values depends of the equipment model.

Coefficients: defined by Terna in order to adjust the Bid done by the applicant

Advance Technical Inputs

Advanced technical inputs can be used to better design the Busines Model.

Once inserter the rights parameters, the RTE value in green will be shown as results.

Than, that value (in this case 80,00%) can be copied in the Round Trip Efficiency cell

Required Oversizing will show how many MWh need to be installed to respect the losses

Auxiliary losses are excluded in this version of thr business model and will be included to calculate the penalties from Terna.

Round Trip Efficiency	%	80	1,062
Solution RTE (@PCS output)	%	93,40%	
LV Cable loss	%	2,00%	
LV/MV Transformation loss (STS)	%	2,00%	
MV Cable loss	%	2,00%	
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Required Oversizing	%	124,57%	
Availability	%	99,00%	

80,00%

Plant RTE (excl. Aux.)

Energy Shifting Inputs Bid

Energy Shifting Assumptions		
Electricity Selling Price [€/MWh]	€ / MWh	80
Electricity Buying Price [€/MWh]	€ / MWh	60
Recognized share by Terna	%	20%

Selling eletricity price in € / MWh

Buying eletricity price in € / MWh

Percentage that Terna will give to the owner of the plant as remuneration

Input section

Summary Results		
BESS Accepted Capacity	MWh	100
Total BESS Equipment CAPEX	€ / MWh	200.000 €
Tota BESS Capex (including oversizing)	€	24.914.616 €
Total Coefficient		0,979
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Summary of the inputs:

- Accepted Capacity
- Total CAPEX: System + Civil works + authorization
- Total Capex in € including the oversizing
- Total Terna Coeffient
- Adjusted BID

Summary of the inputs:

- Total revenue from MACSE fee for 15 years (contract duration)
- Energy Shifting revenue Stream
- Opex in 15 years
- Total Revenue in 15 yers (Macse Fee + Energy Shifting – Opex)

Info

If you want to try this business model, please send an email to postmaster@macse.it and buy it for only **5 €**

For any clarification, suggestion or correction you can write to **postmaster@macse.it**

Thank You!!