



Under Horizon 2020 research and innovation programme  
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BASE



BESB  
EQUILIBRIUM RESPONSABLE

energylab



**Building Energy Efficiency Simulator**  
**GREEN BEES**  
**EEMI Bauhaus**  
**29.03.2021**



Agenda

## Agenda

1. GREEN BEES JOURNEY
2. SIMULATION STEPS
3. SIMULATION OUTPUT: EXAMPLES
4. CONCLUSIONS



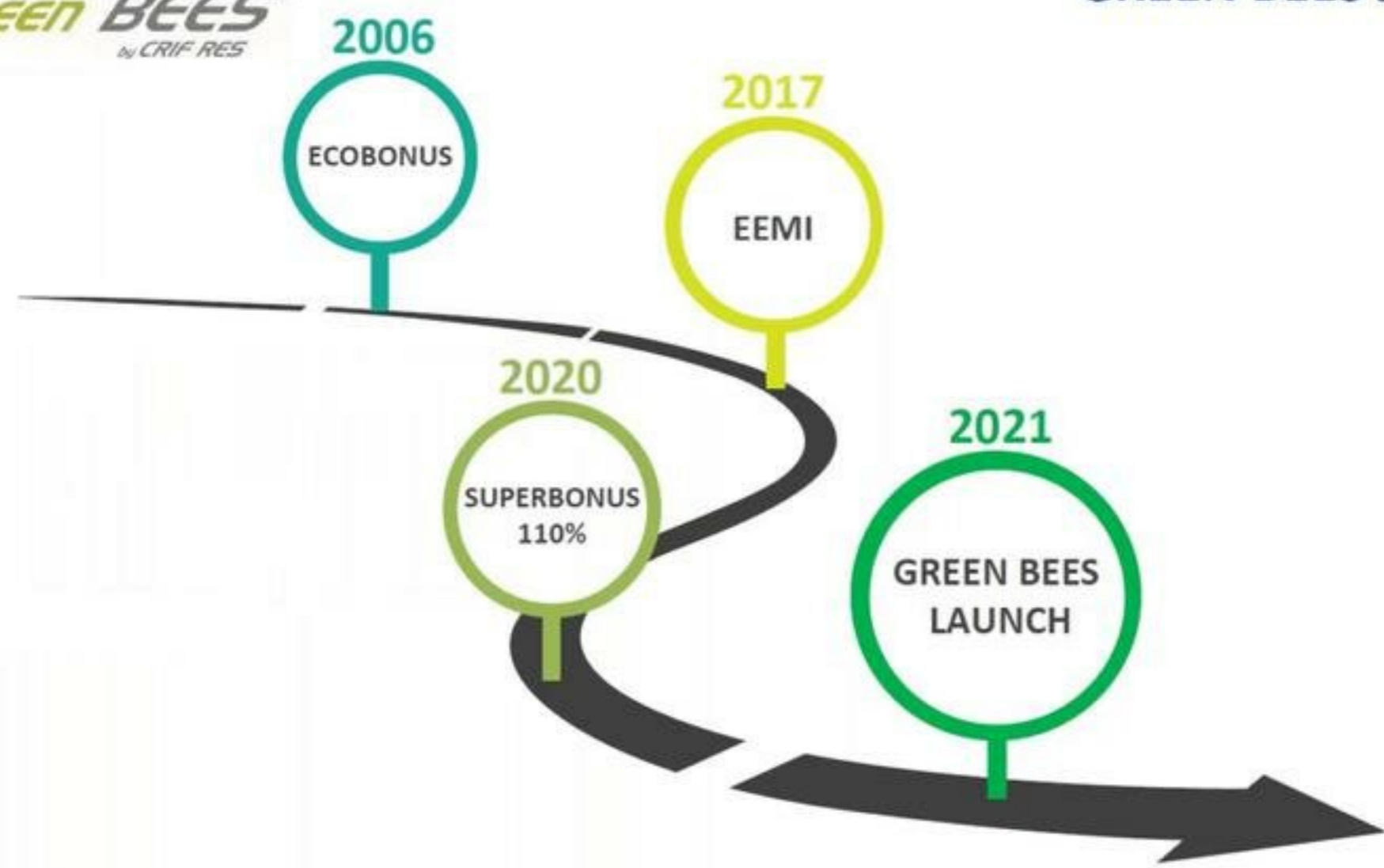


**Green BEES** is a tool supporting financial institutions and customers in the green transition of the Italian real estate market, identifying potential energy-efficient residential properties' refurbishments





# GREEN BEES JOURNEY







### 110% tax deductions



A tax credit equal to 110% of the costs incurred between July 1, 2020 and June 30, 2022 for residential buildings' refurbishments.

110 % = 22% \* 5, for the costs incurred in the years 2020 and 2021, 4 annual equal amount for works carried out in 2022.

### Tax credit transfer



The tax credit transfer offers the beneficiary the option of taking the deduction for a specific work eligible under the Decree's minimum requisites or passing it on to the supplier or others.

Everyone can benefit from the tax credit transfer.

### Invoice discount mechanism



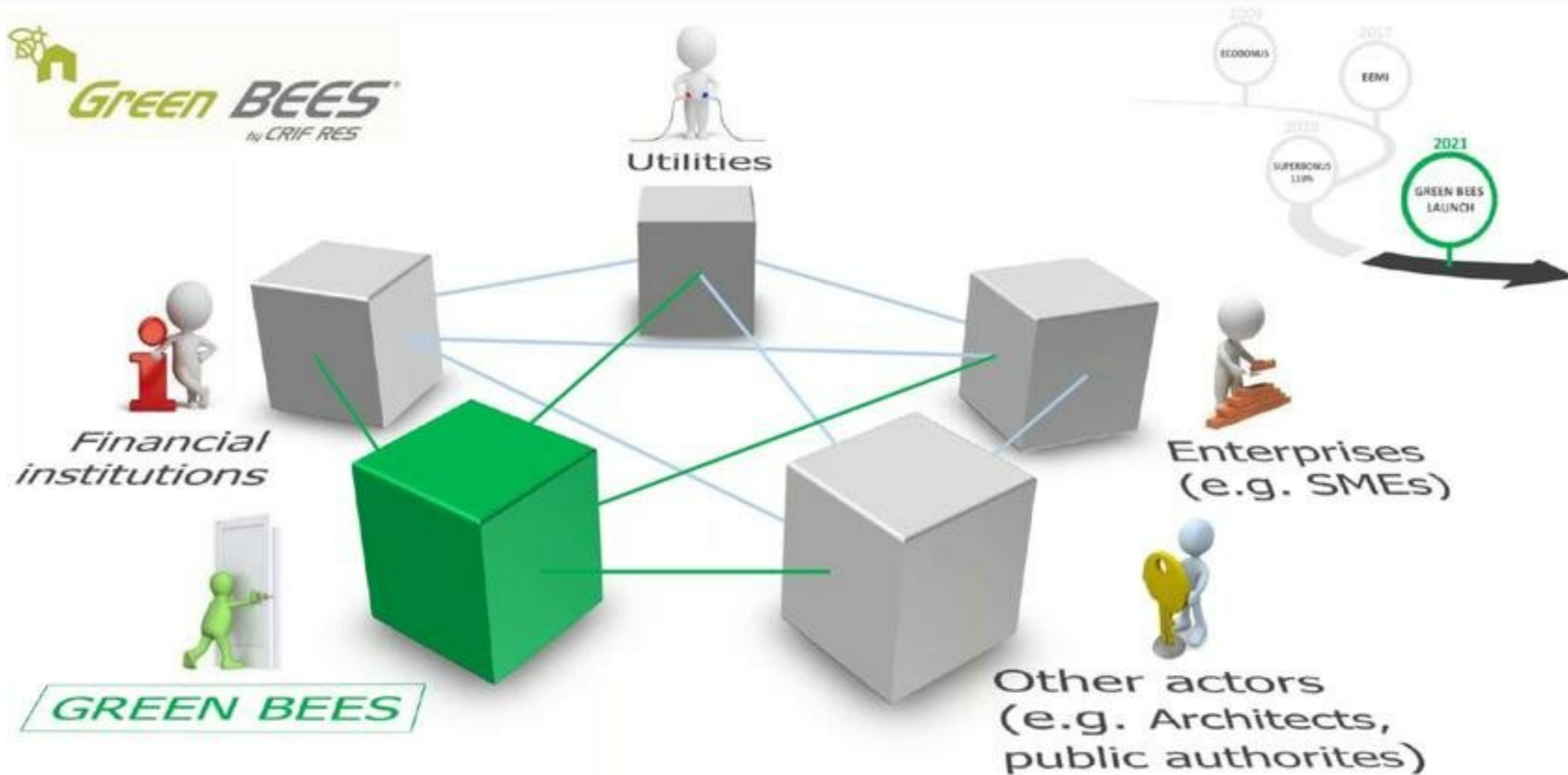
It is a reduction in the sum due to suppliers that have carried out work. The invoice is transformed in the form of a tax credit which, in its turn, can be passed on to others.

### Projects



Energy efficiency, architectural heritage restoration work, earthquake-proofing measures, the installation of photovoltaic systems and charging columns for electric vehicles.







Data Input:  
Property's geo  
localisation



Data Input:  
Property's minimum  
set of information



List of possible 'green'  
refurbishments



Resume



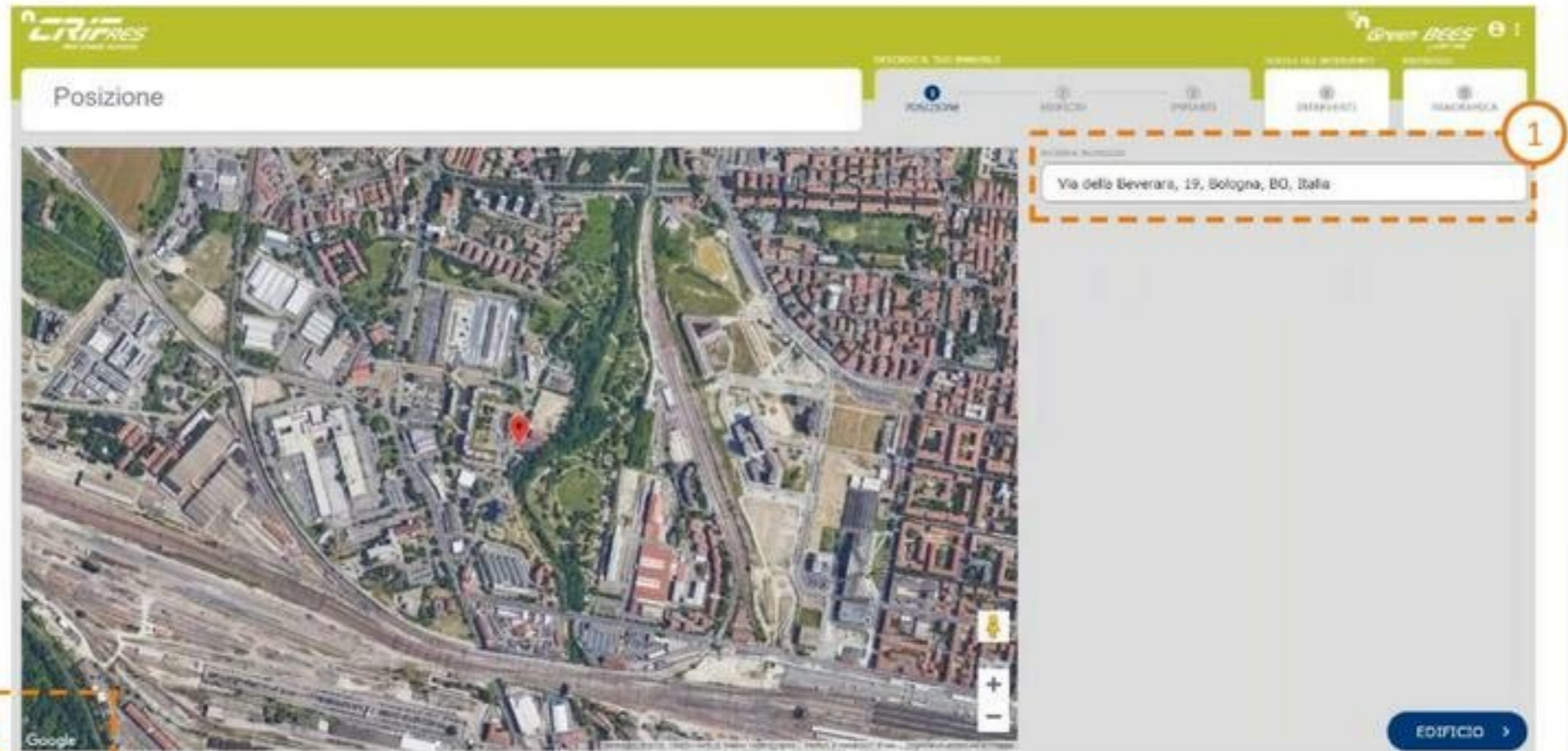




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1. The geo localisation is immediate through the search bar and the Google Maps view





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**FEATURES**

- ✓ 80 m<sup>2</sup> apartment
- ✓ Construction year: 1960
- ✓ Region: Veneto
- ✓ EPC: G
- ✓ Property value: € 839,000 (2024)

## OUTPUT 1 – Flat in Cortina D’Ampezzo

**BEES Output**

A B C **D** E F G  
 After Before

**Building's interventions**  
 Wall's insulation  
 Fixtures' replacement

**Systems' interventions**  
 Energy efficient heating pump

HEATING SYSTEM 1,654 MWh/year  
 ELECTRIC SYSTEM 2,500 kWh/year  
 COOLING SYSTEM -  
 SAVINGS -1,088 €/year (78%)

**Estimated investments:**  
€ 24,000 – 31,500

**Potential Ecobonus deduction:**  
€ 14,000 – 18,500

**Potential Superbonus (110%) deduction:**  
€ 25,500 – 33,000



## OUTPUT 2 – Flat in Milan (Suburbs)



**FEATURES**

- ✓ 70 m<sup>2</sup> apartment
- ✓ Construction year: 1965
- ✓ Region: Lombardia
- ✓ EPC: F
- ✓ Property value: € 187,000 (2020)

## OUTPUT 2 – Flat in Milan (Suburbs)

### BEES Output

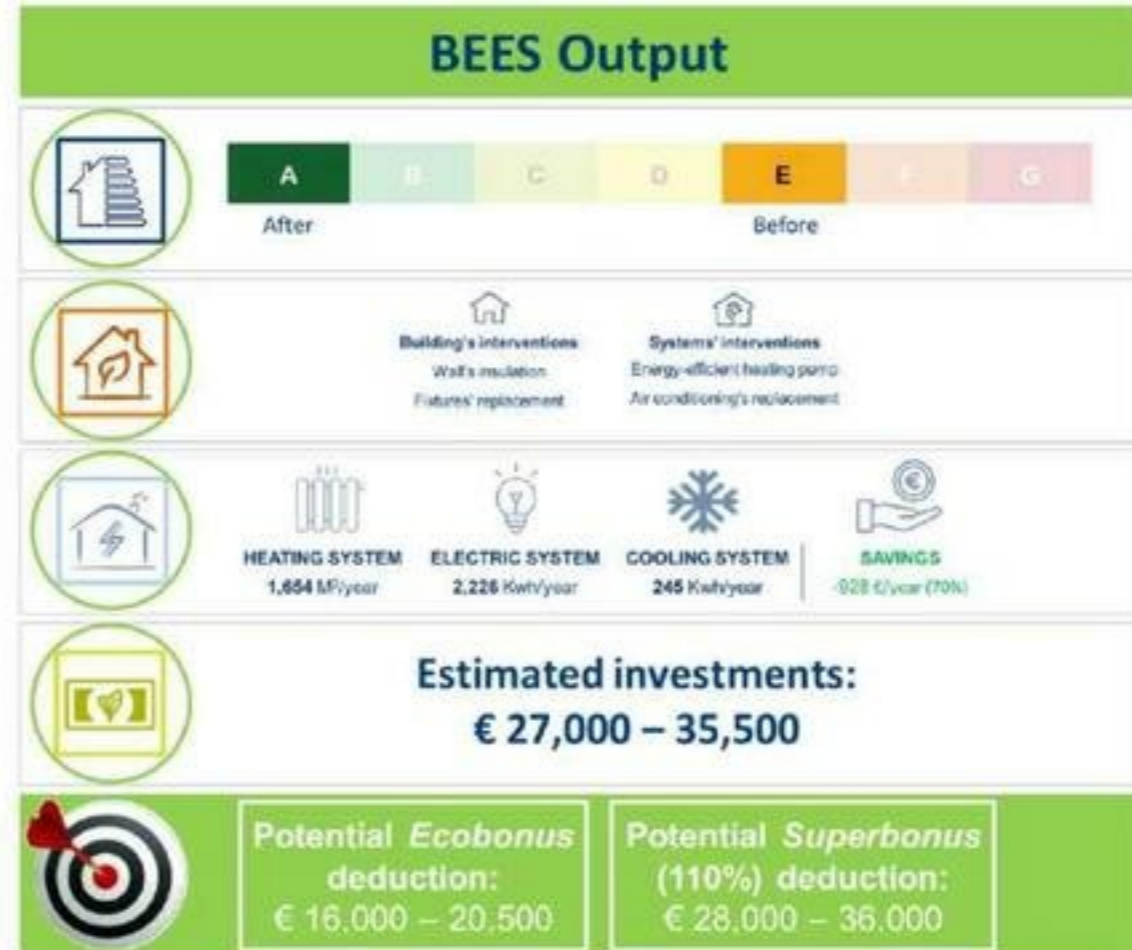
	A	<b>B</b>	C	D	E	F	G
	After			Before			
	<b>Building's interventions</b> Wall's insulation Fixtures' replacement			<b>Systems' interventions</b>			
	<b>HEATING SYSTEM</b> 1,304 M <sup>3</sup> /year		<b>ELECTRIC SYSTEM</b> 2,500 Kwh/year		<b>COOLING SYSTEM</b> -		<b>SAVINGS</b> - 857 €/year (77%)
	<b>Estimated investments:</b> € 23,000 – 30,000						
	<b>Potential Ecobonus deduction:</b> € 13,500 – 18,000			<b>Potential Superbonus (110%) deduction:</b> € 24,500 – 31,500			



## OUTPUT 3 – Flat in Rome (Centre)



## OUTPUT 3 – Flat in Rome (Centre)





**FEATURES**

- 120 m<sup>2</sup> detached house
- Construction year: 1973
- Region: Toscana
- EPC: F
- Property value: € 239,000 (2019)

## OUTPUT 4 – Detached house in Lucca

BEES Output

A

B

C

D

E

F

G

After Before

**Building's interventions**

Wall's insulation  
Furniture's replacement

**Systems' interventions**

Energy-efficient heating pump  
Air conditioning's replacement

**HEATING SYSTEM**

881 M<sup>3</sup>/year

**ELECTRIC SYSTEM**

1,532 Kwh/year

**COOLING SYSTEM**

156 Kwh/year

**SAVINGS**

-1,248 €/year (31%)

Estimated investments:

€ 50,500 – 66,000

**Potential *Ecobonus* deduction:**

€ 29,500 – 38,500

**Potential *Superbonus* (110%) deduction:**

€ 53,000 – 68,500



## OUTPUT 5 – Terraced house in Catania



**FEATURES**

- ✓ 150 m<sup>2</sup> apartment
- ✓ Construction year: 2013
- ✓ Region: Sicilia
- ✓ EPC: C
- ✓ Property value: € 274,000 (2017)

## OUTPUT 5 – Terraced house in Catania

**BEES Output**

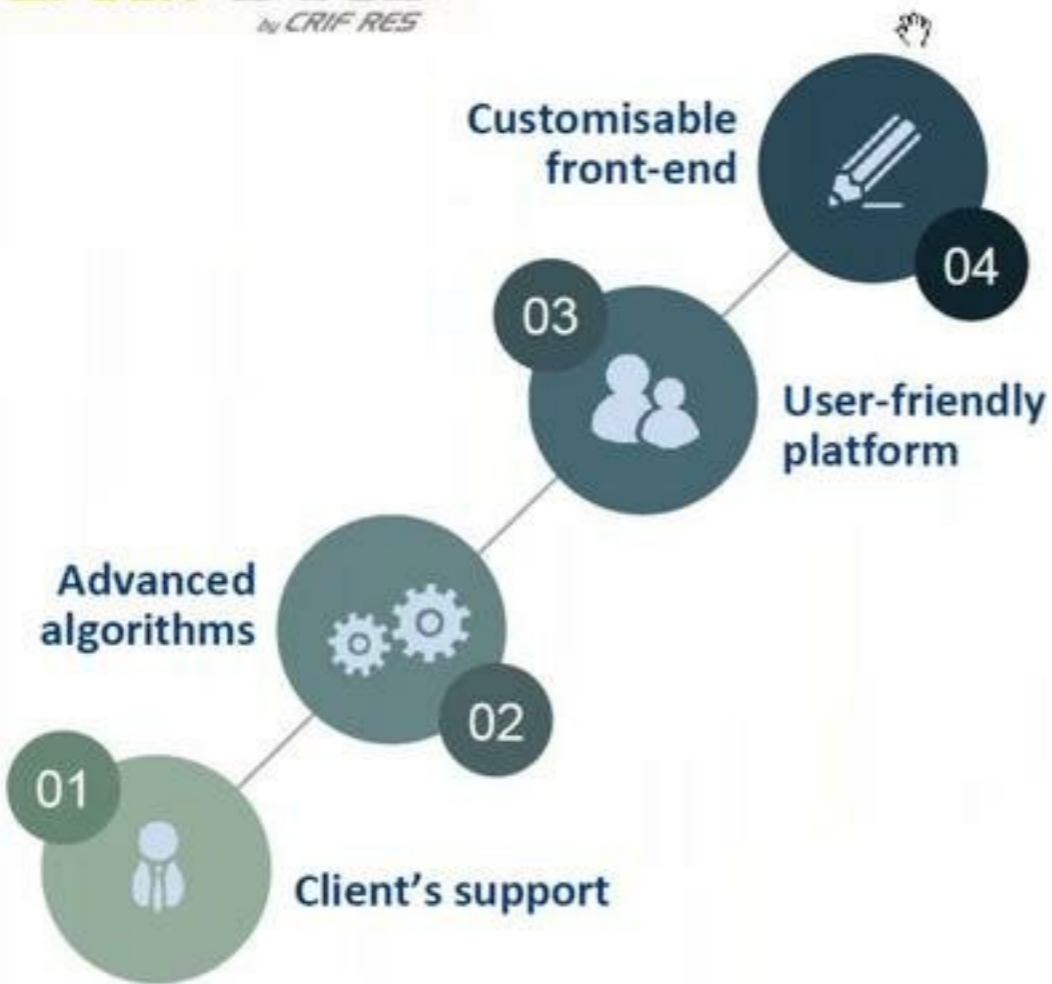
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
	After		Before				
	Building's interventions			Systems' interventions			
				Condensing boiler's installation Air conditioning's replacement Solar panels' installation			
	HEATING SYSTEM	ELECTRIC SYSTEM	COOLING SYSTEM	SAVINGS			
	378 M <sup>3</sup> /year	2,320 Kwh/year	1,911 Kwh/year	-895 C°/year (49%)			
	<b>Estimated investments:</b> <b>€ 17,000 – 22,500</b>						
	Potential <i>Ecobonus</i> deduction: € 10,000 – 13,000			Potential <i>Superbonus</i> (110%) deduction: € 9,500 – 12,000			



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THANK YOU

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