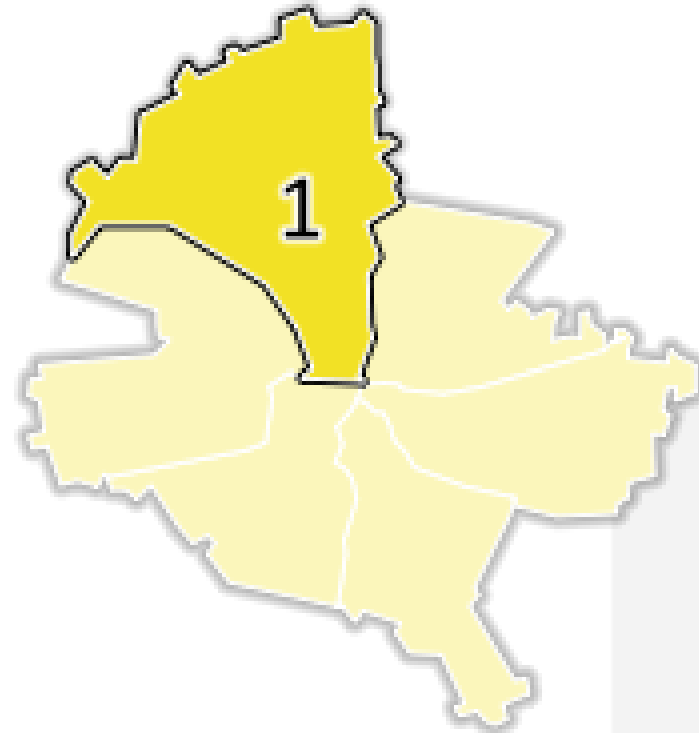


Energy efficiency program for District 1, Bucharest



Energy efficiency program

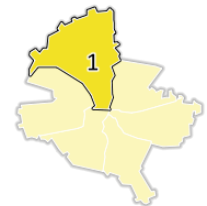
Multistorey thermal rehabilitation



Domestic elevators modernization



Individual houses thermal rehabilitation

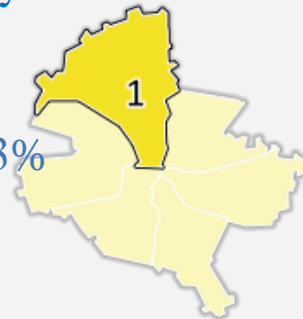


Energy efficiency program for District 1, Bucharest

Thermal Rehabilitation in District 1 in 2009-2017



- Total investment of EUR 353 mil
- 42.539 apartments in the rehabilitated buildings
- 839 blocks from District 1 for which the thermal rehabilitation works have been completed
- EIB investment of EUR 147 mil
- Investments from the Local Budget in amount of EUR 206 mil during a period of 9 years
- Decrease of heating consumption by approx. 58% and CO₂ emissions by approx. 43%

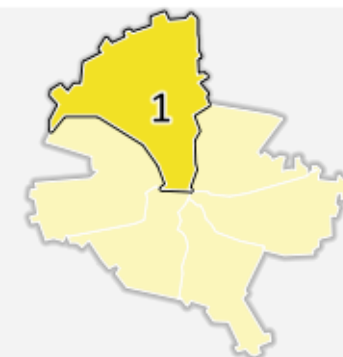


Energy efficiency program for District 1, Bucharest

Thermal Rehabilitation in District 1 in 2009-2017



Number of buildings rehabilitated	839
Number of apartments rehabilitated	42,539
Total energy saved through the thermal rehabilitation project (MWh/year)	330,399
Reduction of CO2 emissions through the implementation of the thermal rehabilitation program (tons/year)	73,292



Energy efficiency program for District 1, Bucharest

Domestic elevators modernization



Decrease of energy consumption



Decrease of CO₂ emissions



Energy efficiency program

Domestic elevators modernization

Law no. 231/2017 on amending and supplementing
Emergency Ordinance no. 18/2009 regarding the increase
of energy performance of residential multistorey
buildings



article 4 paragraph (1)



b²)

repairing/replaicing, depending on the case, the electric actuators of the elevators for people, based on an expert technical report'



k)

repairing/replaicing the mechanical components, of the cabin/access doors, of the traction system, the control boxes, of the winchs (depending on the case), as it is stated in the expert technical report'



Energy efficiency program

Domestic elevators modernization

S1: replacement/repair works, depending on the case, of the winch motor, traction cables, considering the length specified in the technical book of each elevator, of the structure for the motor and of the relay controller, as the case may be, rods, springs, traction cable clamps, speed limiters but also of the speed limiting cable and the cable tensioner.



Energy efficiency program

Domestic elevators modernization

S2: replacement/repair of the control panel with a microprocessor panel and frequency converter, of the transducers (sensors for station counting and leveling), of the magnets, level control boxes and from the control box with LED or LCD and Braille marking for the buttons, cabin flexible cable (strap / ribbon type), doors' cable, line end switch with reel but also, of the mushroom switch



Energy efficiency program

Domestic elevators modernization

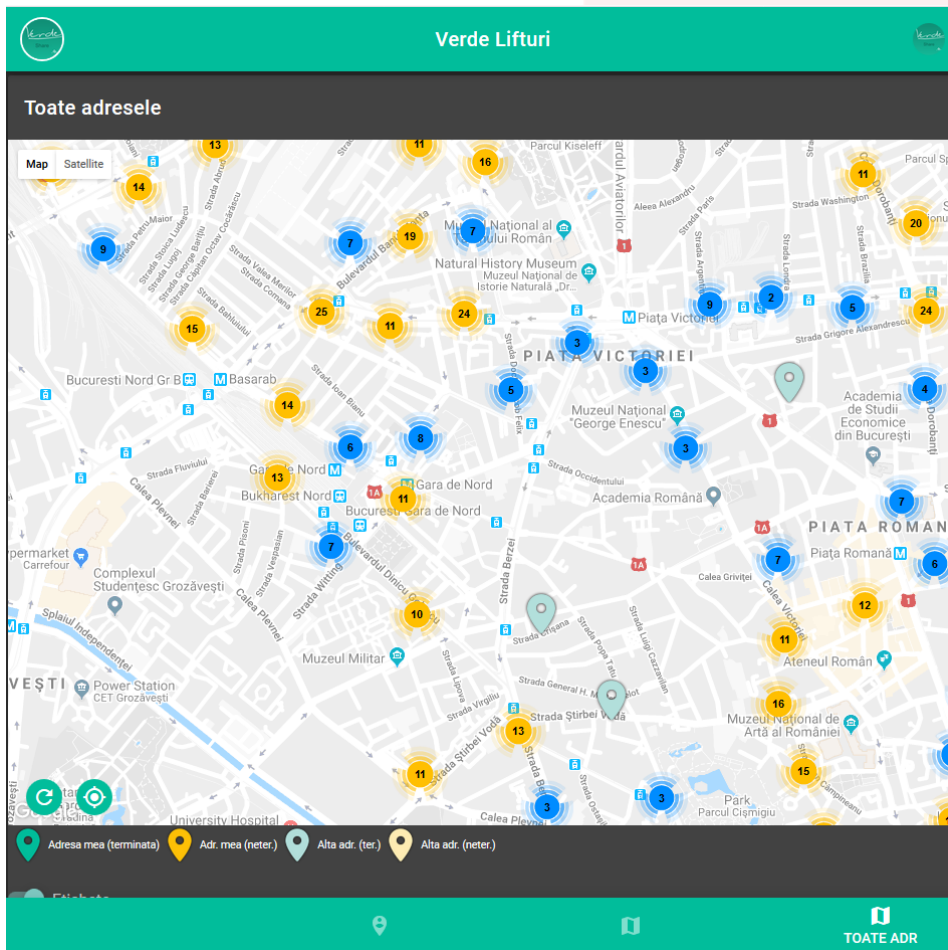
S3: replacing the exterior doors with automated/semiautomated doors, both for wells with reinforced concrete structure and for the ones with a metallic structure but metallic for the cabin.



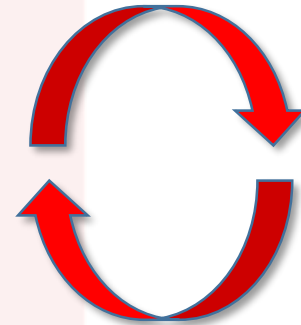
Energy efficiency program

Domestic elevators modernization

Domestic elevators inventory

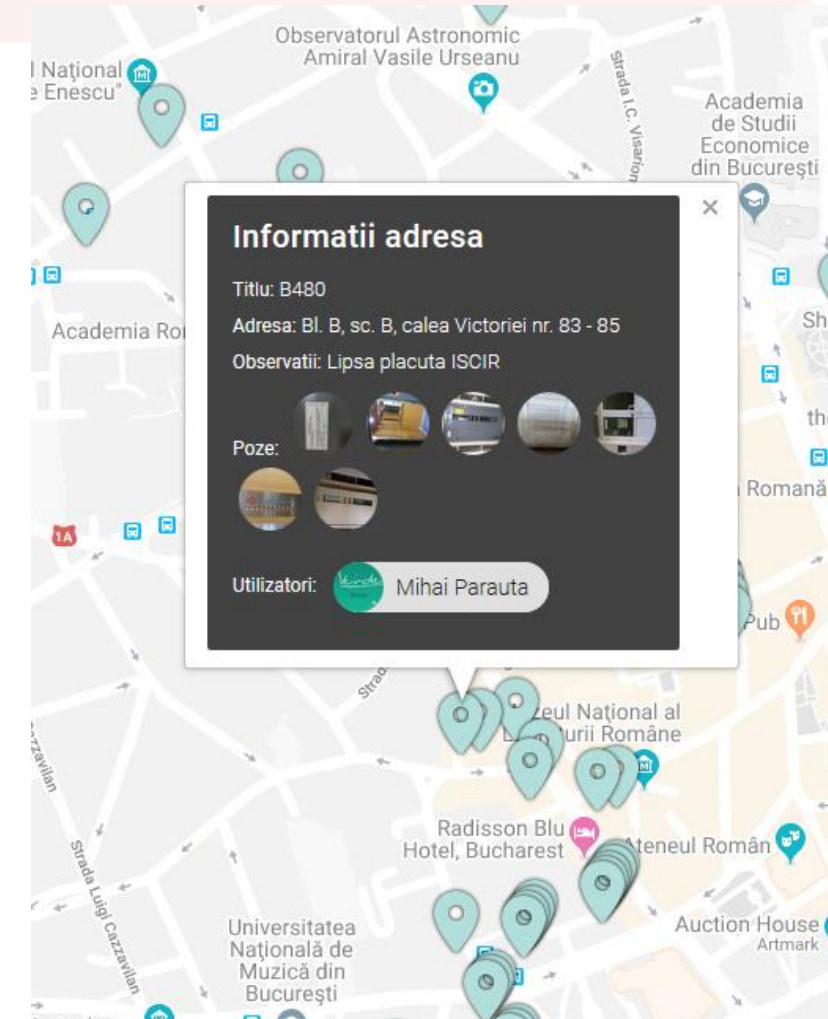


834 entrances



902 elevators

<https://lifturi.verdedata.ro/#/>

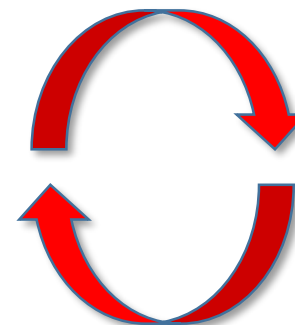


Energy efficiency program

Domestic elevators modernization

Domestic elevators inventory

Height regime	No entrance	No entrance using the adjacent entrance	No entrance with 1 elevator	No entrance with 2 elevator
S+P+5E	4	0	4	0
S+P+6E	26	0	25	1
S+P+7E	147	0	146	1
S+P+8E	244	1	234	9
S+P+9E	125	2	113	10
S+P+10E	225	0	195	30
S+P+11E	44	0	35	9
S+P+12E	13	0	6	7
S+P+13E	2	0	2	0
S+P+14E	2	0	0	2
S+P+15E	1	0	0	1
S+P+3M+15E	1	0	0	1
Total	834	3	760	71



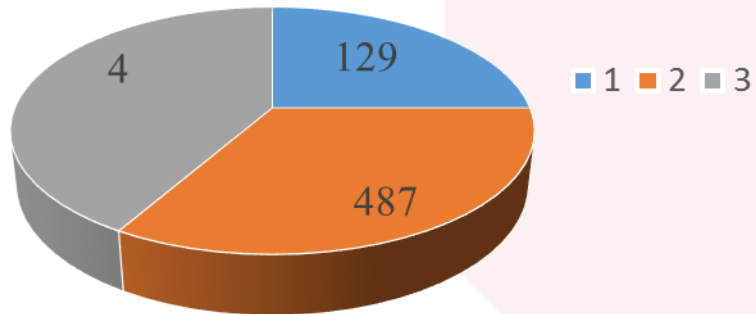
Height regime	No elevators
S+P+5E	4
S+P+6E	27
S+P+7E	148
S+P+8E	252
S+P+9E	133
S+P+10E	255
S+P+11E	53
S+P+12E	20
S+P+13E	2
S+P+14E	4
S+P+15E	2
S+P+3M+15E	2
Total	902

Energy efficiency program

Domestic elevators modernization

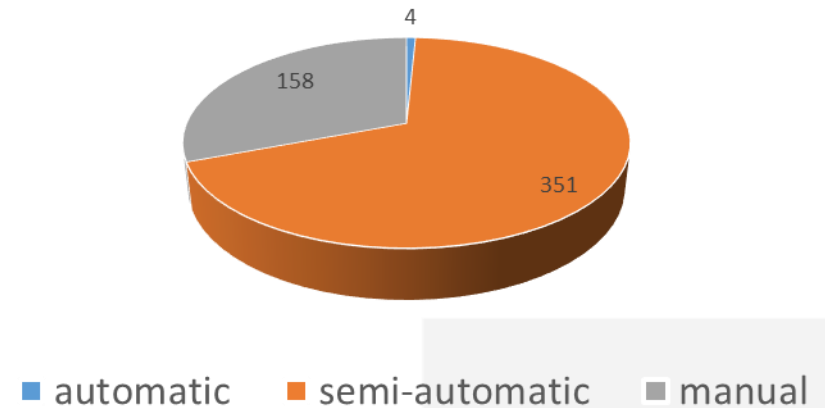
Domestic elevators inventory

No elevators depending on cabine capacity



620

No elevators depending on door's type

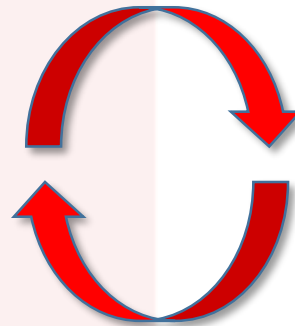
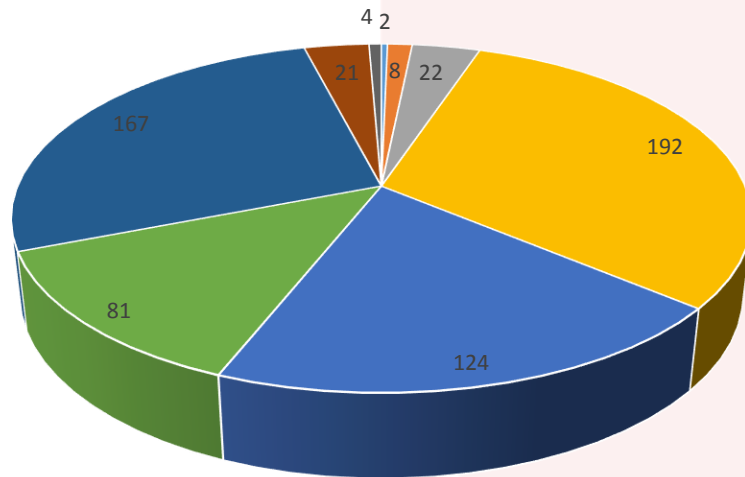


513

Domestic elevators modernization

Domestic elevators inventory

No of elevators depending on stations no



Stations no	Elevators no
5	2
6	8
7	22
8	192
9	124
10	81
11	167
12	21
15	4
Total	621

Domestic elevators modernization



**ESTIMATION OF ENERGY CONSUMPTION
DECREASE**



40%

Domestic elevators modernization



ESTIMATION OF ENERGY CONSUMPTION DECREASE

Primary nergy consumption before thermal rehabilitation and elevators modernization	MWh/an	530.961
Primary energy consumption after thermal rehabilitation and elevators modernization	MWh/an	319.960
Primary energy consumption saving after thermal rehabilitation and elevators modernization	GWh/an	211,001
Relative primary energy saving	%	40%
CO ₂ decrease after thermal rehabilitation and elevators modernization	tons/year	15.001
Relative CO ₂ decrease	%	38%

Domestic elevators modernization



ESTIMATION OF COST FOR ELEVATOR MODERNIZATION (EQUIPEMENTS + ASSEMBLY)

S1:



3.650 €

S2:



3.620 €

S3:



8.770 €



16.040 €

Domestic elevators modernization



ESTIMATION INVESTEMENT COSTS FOR ELEVATOR MODERNIZATION

75,350,000 LEI



16.380.000 €

Energy efficiency program



Individual houses retrofit

