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ENERGY EFFICIENCY IN RESIDENTIAL AND PUBLIC BUILDINGS

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USAID-HELLENIC AID ENERGY COOPERATION
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USAID ENERGY EFFICIENCY PRIORITIES

- Areas of Focus
 - Residential/low income/affordability
 - Public buildings
- Approach
 - Strengthen institutions to provide stronger basis for Government energy policies and plans
 - Improve investment climate to stimulate financing (including non-governmental)
 - Primarily regional focus; some bilateral opportunity



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RECENT AND ONGOING ACTIVITIES

- Addressing Affordability of Utility Services in Urban Housing: Energy Efficiency Solutions (Alliance to Save Energy)
- Regional Urban Heating Policy Assessment (Alliance to Save Energy)
- Regional Energy Efficiency Stocktaking (IRG/Alliance to Save Energy)
- Regional Energy Demand Planning (IRG)



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RESULTS: USAID-FUNDED ENERGY EFFICIENCY PROJECTS

TYPE (#)	COUNTRIES	COST RANGE (\$000's)	AVERAGE PAYBACK
Hospitals (16)	Bulg., Serbia, Lith., Cz.	\$40 - \$380	2.9
Schools (18)	Serbia, Bulg., Skopje, Ukr., Cz., Pol., Hung	\$1.8 - \$127	3.1
Apartment Buildings (5)	Albania, Ukr., Pol., Slovakia	\$3.6 - \$163	3.5
Street Lighting (20)	Serbia, Bulg., Pol.	\$5 - \$450	3.9
Mun. Bldgs. (6)	Serbia, Bulg.	\$83 - \$362	3.1
Sr. Center (2)	Serbia, Skopje	\$5 - \$173	2.0



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RESIDENTIAL EE SAVINGS (from case studies collected for ASE Regional Assessment)

- **METERING/CONSUMPTION-BASED BILLING**
 - Savings \geq 20%
- **Low Cost Measures**
 - Savings: 20 – 40%
 - Heat cost allocators and thermostatic control valves; weatherization; radiator shields, CFLs
- **COMPREHENSIVE IMPROVEMENTS**
 - Above measures, plus building envelope (insulation), windows
 - Savings: 40 – 60%



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RESIDENTIAL EE SAVINGS DETAILS (from case studies collected for ASE Regional Assessment)

Table 1. Typical Annual Savings from Energy-Efficiency Improvements in Multi-Family Residential Buildings of CEE and the CIS																						
	Armenia (Yerevan)	Arm. (Yerevan & Gyumri)	Bulgaria (Gabrovo)	Bulgaria (Pleven)	Bulgaria (Sofia)	Czech. (Brno)	Czech. (Rumburk)	Latvia (Kuldīga)	Latvia (Valmiera)	Lithuania (Vilnius)	Poland	Poland (Warsaw)	Romania (Bucharest)	Serbia (Pancevo)	Slovakia (Kosice #1)	Slovakia (Kosice #2)	Slovakia (Pezinok)	Slovakia (Žiar #1)	Slovakia (Žiar #2)	Ukraine (Kiev)	Ukraine (Lviv #1)	Ukraine (Lviv #2)
HEATING and LIGHTING																						
New roof					•		•												•			
Insulation: Walls					•	•	•	•	•	•		•			•	•	•		•			
Insulation: Basement					•	•	•	•	•	•						•			•			
Insulation: Roof/Attic					•	•		•	•	•		•			•	•	•					
Windows					•	•	•	•		•					•						•	
Doors (exterior)			•		•	•		•							•	•			•			
Weatherization		•	•	•	•	•	•			•	•					•			•	•	•	•
Waste heat recovery						•									•			•				
TRVs/HCAs		•	•	•								•		•	•							
Radiator shields			•	•																•		
Meters - heating		•																•				•
Heating pipes upgraded/insulated					•	•			•							•			•	•		
Hydraulic regulation		•														•	•	•	•			
New boiler for building												•										
Substation retrofit			•								•			•						•		
CFLs/automation			•													•						
Energy Savings			30%	26%	60%	51%	47%	28%	39%			52%	10%	55%	2%	46%	61%	57%	21%			
Annual Cost Savings*	\$21	\$52	23%	\$350	\$172	\$468	\$190	\$246	50%	35%	45%		\$60							\$19	\$25	\$35



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ENERGY EFFICIENCY TECHNOLOGIES

	Hospital	Schools	Apt.Bld	St.Ltg.	Munic.	Sr.Ctr.
Heating	X	X	X		X	X
Ventil.	X					
Window	X	X	X		X	
Wthzn.	X	X	X		X	X
Lighting	X	X	X			
HPS				X		
Water	X					
HWater	X					X
Control	X		X	X	X	
Timers				X		



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