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# Energy renovation of public buildings **TRENDS IN CROATIA**

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# ENERGY RENOVATION CONTEXT IN CROATIA

Legal and policy  
background



# ENERGY EFFICIENCY AND RENEWABLE ENERGY SOURCES PROGRAMMES & STRATEGIES



**2014 - 2015**

**PUBLIC  
BUILDINGS**



**2014 - 2020**

**MULTIAPARTMENT  
BUILDINGS**



**2014 - 2020**

**FAMILY  
HOUSES**



**2014 - 2020**

**COMMERCIAL  
NON RESIDENTAL  
BUILDINGS**



**2016 - 2020**

**PUBLIC  
BUILDINGS**

**LONG-TERM  
STRATEGY -  
INVESTMENTS  
IN NATIONAL  
BUILDING  
FUND**

**2014**

**2015**

**2016**

**2020**

**2050**





## Croatia encourages 2 models of public buildings deep renovation:

### **MODEL 1**

Energy  
performance  
contracting - EPC

### **MODEL 2**

Contracting of  
construction works

# MUTUAL GOALS

- accomplish EUROPE 2020 strategic objectives – decrease energy consumption (buildings consume more than 40% of total energy consumption) and CO<sub>2</sub> emissions
- initiate investments in construction sector
- public sector acts as an example
- initiate deep renovation approach
- accomplish EED objectives – energy renovation of at least 3% of buildings owned and occupied by central government







# MODEL 1

## Energy performance contracting

## SPECIFIC MODEL 1 GOALS

- develop ESCO market in Croatia
- deep energy renovation of public buildings without additional expenditures of national budget
- joint investment of private capital (60% by energy service company – ESCO) and grants (40%)





# CONTRACTING & IMPLEMENTATION

## Procurement

Croatian government real estate agency conducts public procurement and coordinates the relation between the public building owner and ESCO

## Activities

ESCO proposes which energy renovation activities will be implemented to achieve deep renovation

## Design

ESCO is obligated to gather and prepare all relevant technical documentation

## Period

Max. 14 years contracting period of energy service between ESCO and the public body

## Savings

Savings achieved through energy renovation are used for paying the service charge to ESCO

## Maintenance

ESCO is responsible for maintenance of the building and the equipment



# KARLOVAC GENERAL HOSPITAL





# MODEL 2

## Contracting of construction works



## SPECIFIC MODEL 2 GOALS

- Absorb all available ERDF funds by the year 2020 (211 mil EUR)
- achieve 50% savings in heating and cooling energy consumption
- initiate energy renovation of buildings that weren't suitable for EPC – kindergardens, schools, healthcare buildings, fire stations..





# IMPLEMENTATION

## Continuity

Launching Calls for proposals for awarding ERDF funds for energy renovation of public buildings since 2015

## Allocation

150 mil EUR out of 211 mil EUR of available allocation is placed

## Contracted

249 signed contracts for energy renovation (50 mil EUR of grants)

## Plan

Additional 300 contracts expected by the end of 2018 (75 mil EUR of grants)

## Calls

Total of 4 Calls for proposals for en. renovation of public buildings launched so far. Current Call continues in fall of 2018.

## Financial instruments

25 mil EUR as support to beneficiaries' participation in total project costs (loans with 0,1 to 0,5 % interest rate)

# VIROVITICA STUDENT DORM



Total project value: **175.000 €**  
Allocated ERDF funds: **107.000 €**

## MEASURES

- o thermal insulation of external walls, roofs and ceilings
- o replacement of interior lighting

**Energy savings: 72%**







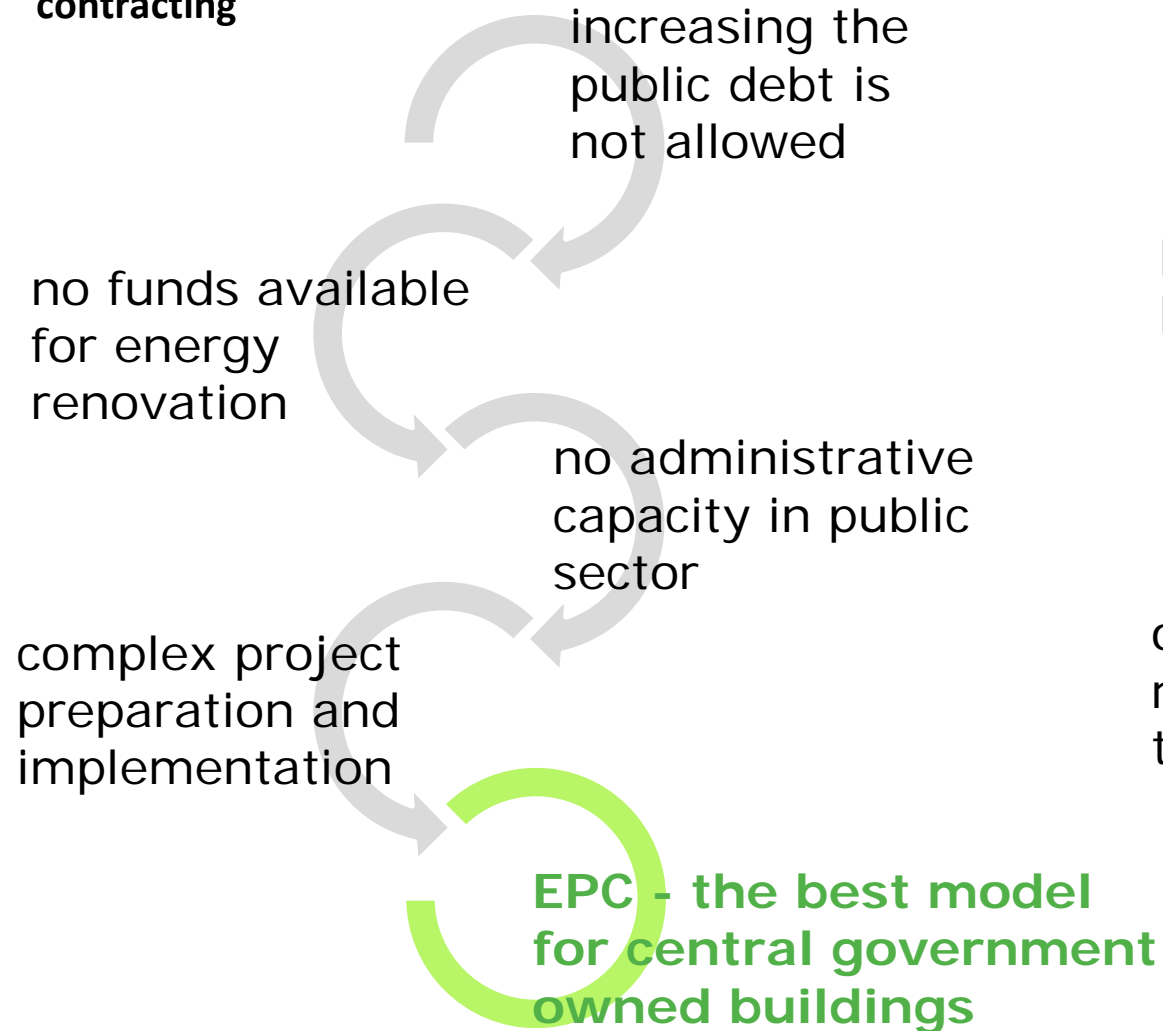
# RENOVATING CROATIA!

# LESSONS LEARNED



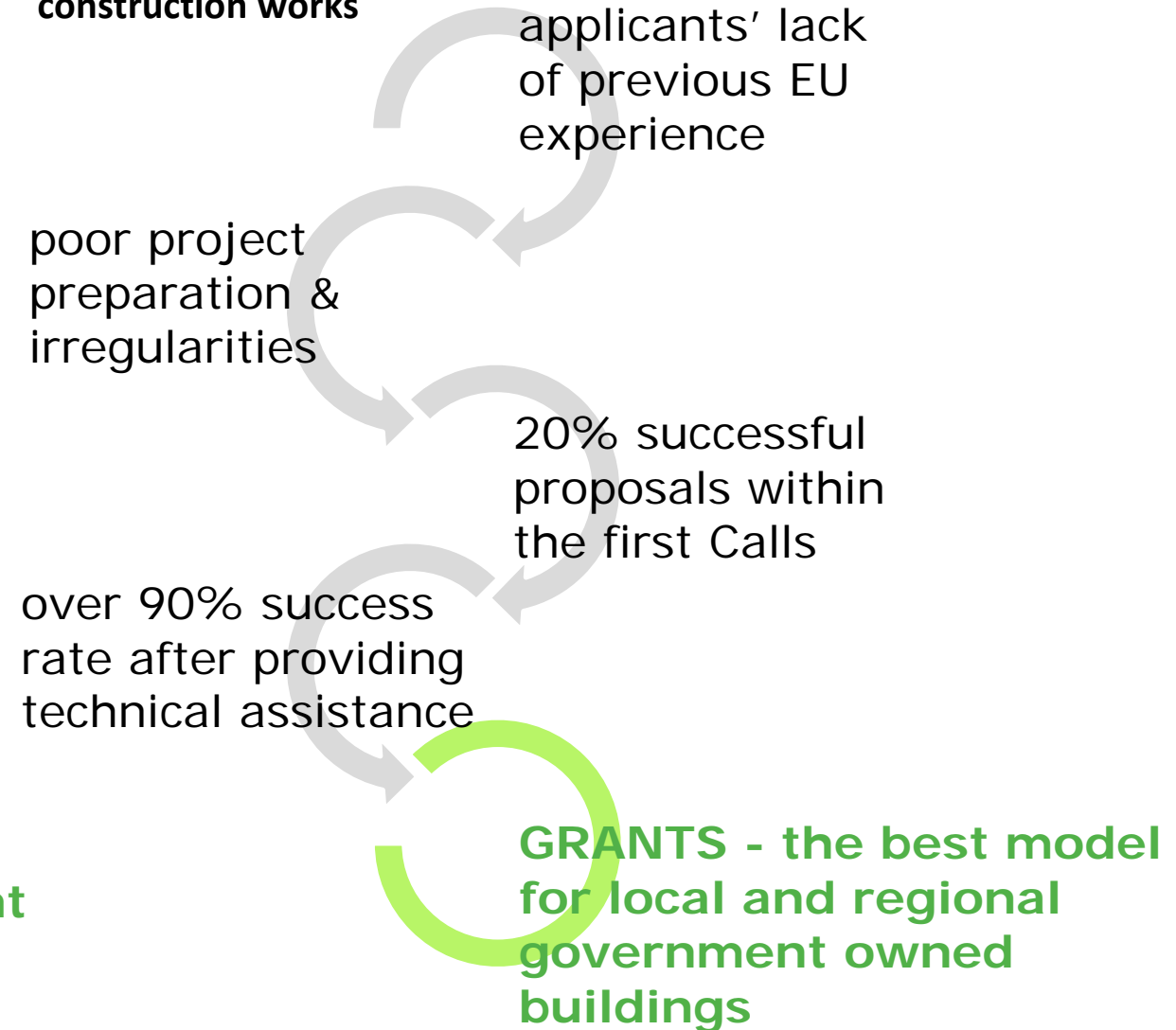
## MODEL 1

Energy performance contracting



## MODEL 2

Contracting of construction works



# COMMUNICATION & VISIBILITY



- 70 workshops for over 2000 participants held from 2015 to 2018
- press conferences, seminars, kick-off conferences
- monthly newsletter in Croatian and English
- regularly updated web sites

# CHALLENGES

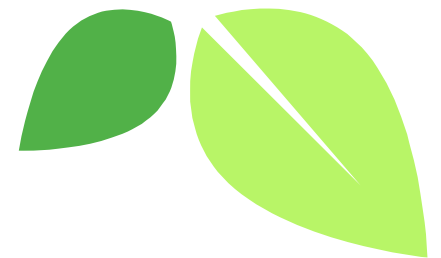
LACK OF  
QUALIFIED  
WORKFORCE

MEETING THE  
DEADLINES

INSUFFICIENT  
NUMBER OF  
CONSTRUCTION  
COMPANIES

LACK OF  
CONSTRUCTION  
MATERIAL

INCREASED PRICE  
OF ENERGY  
RENOVATION





## RESULTS

318 buildings

69 MODEL 1, 249 MODEL 2

847.000 m<sup>2</sup>

heated floor area renovated

190.000.000 €

total investment

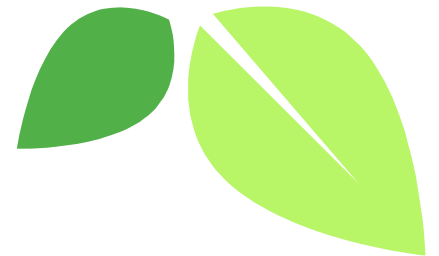
## ANNUAL SAVINGS

127 GWh/a

SAVED ENERGY SUFFICIENT  
FOR HEATING

14.500

HOUSEHOLDS







*The greatest threat  
to our planet is the  
belief that someone  
else will save it*

**ROBERT SWAN**

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