Benefiting from Open Data in the Energy Efficiency Sector

The Case for Consultants, Financial Institutions and ESCOs

Kiril Raytchev
kiril_raytchev@hotmail.com

Executive Summary

The EU Commission estimates that "the mobilization of an extra **€177 billion** from public and private investment sources is needed **annually** from 2021 to 2030 to reach the 2030 climate and energy targets."

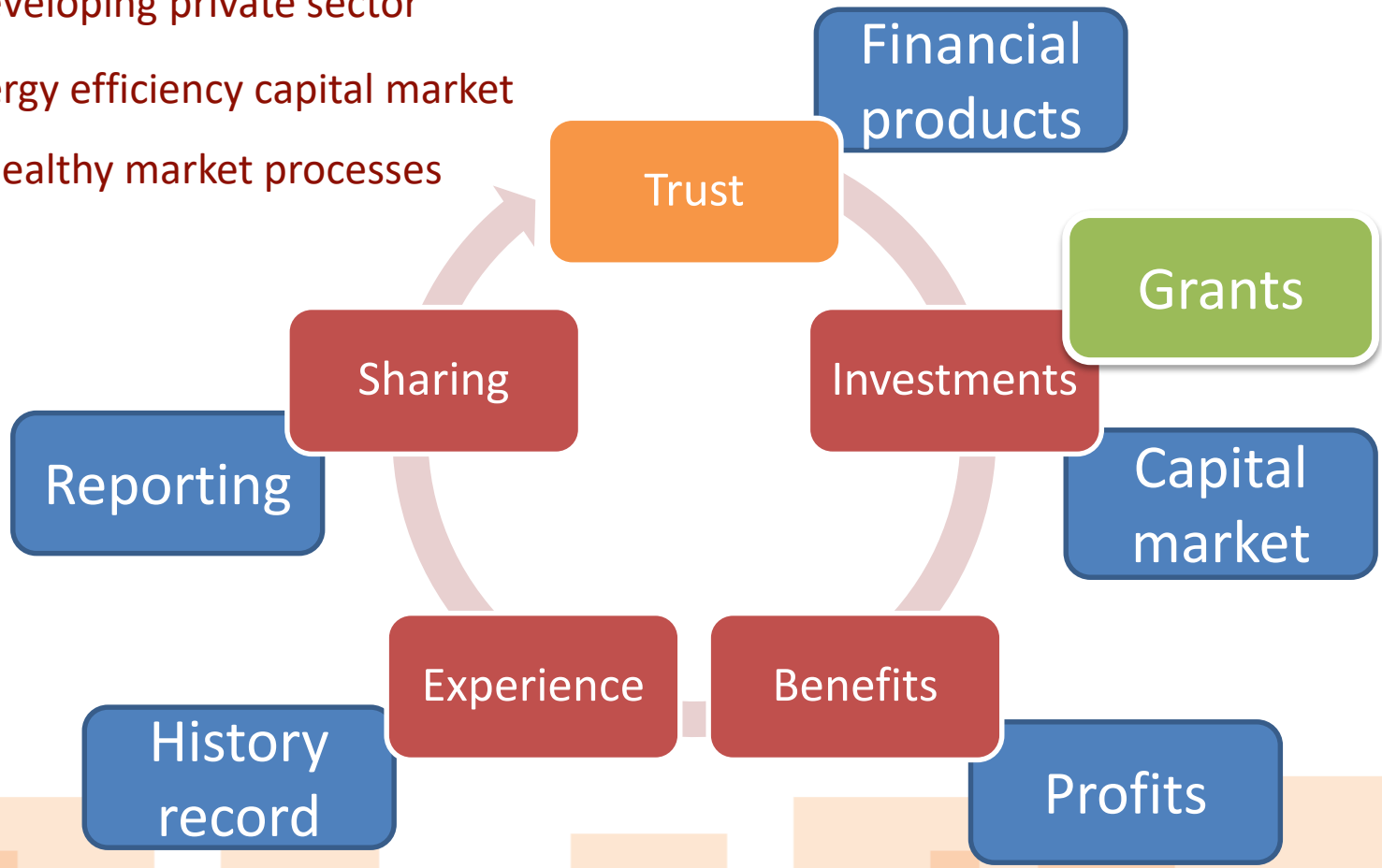
Meeting such scale of demand for financial resources requires a **5-dimensional ecosystem**, able to unveil and classify market opportunities, quickly and effectively allocate and distribute capital, and ultimately bringing the level of impact that would stop the climate change.

By strengthening **trust (1D)** in the energy efficiency business, achieved with the realization of constantly being enriched from the participating stakeholders **open data infrastructure (2D)**, able to effectively channel **grant (3D)** and **private (4D)** resources, would in the end make the energy efficiency business tradeable to an extent, suitable for the **capital markets (5D)**. In that way it would be ensured that a maximum bandwidth has been provided for investments and that the climate and energy targets would be reached.

A case has been built for **1 EU country** that easily could be scaled to all **23**. It demonstrates how re-routing **€120 million** would save addition **214K** tons of **CO_2**, as well as a ranking system, helping entrepreneurs save time and money.

The 5D Ecosystem Architecture

- Trust has to always be nurtured
- Open data infrastructure with frictionless flow of information
- Constantly developing private sector
- Emerging energy efficiency capital market
- "Unlocking" healthy market processes grants



Data Sources

- ✓ ENERFUND/NIS

  14 parameters | over 5 000 records | pseudo-M2M communication | Energy Performance Certificates data

- ✓ BGEEF

  8 parameters | over 150 records | pseudo-M2M communication | Realized projects data

- ✓ DEEP

  9 parameters | over 10 000 records | “manual” communication | both realized projects and certificates data

- ✓ SEDA PPA RegAg MinFin

  “manual” communication

Stakeholders

Energy Traders

Obliged by law to either invest in energy efficiency saving measures | or buy Savings Certificates | or make payment to specialized energy efficiency funds

Unfamiliar with energy saving projects | Unsure of profitability | Not investing

EE Consultants

Searching for prospective clients | Structuring energy efficiency projects | Facilitating the process of contracting and realization

No preliminary financial check of clients | Too technical sales approach | Too slowly building trust in clients

ESCOs

Working with EE consultants | Financing and realizing energy efficiency projects | Clients payback the investment with energy savings achieved

Difficult access to finance | Competing with grants (free money)

Financial/Donor institutions

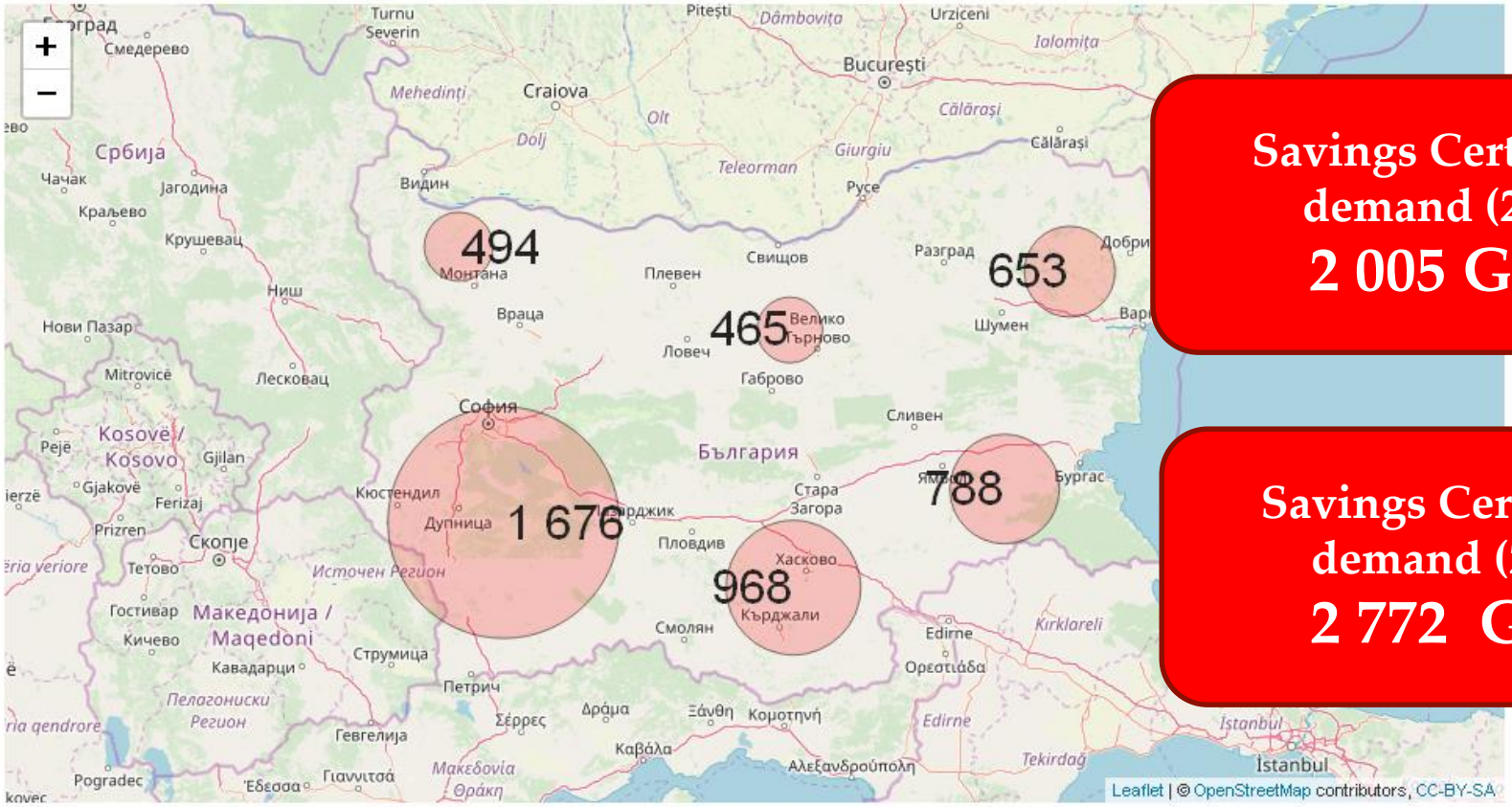
Providing bank loans | Providing EU grants | Bank guarantees | Credit insurances | Financial and legal due diligence

Unfamiliar with energy saving projects | Unsure of savings and profitability | Standard loans, unaccounting for saved from energy money

Key Market Indicators

5 044 CERTIFIED BUILDINGS

Distributed in 6 Regions of Economic Development

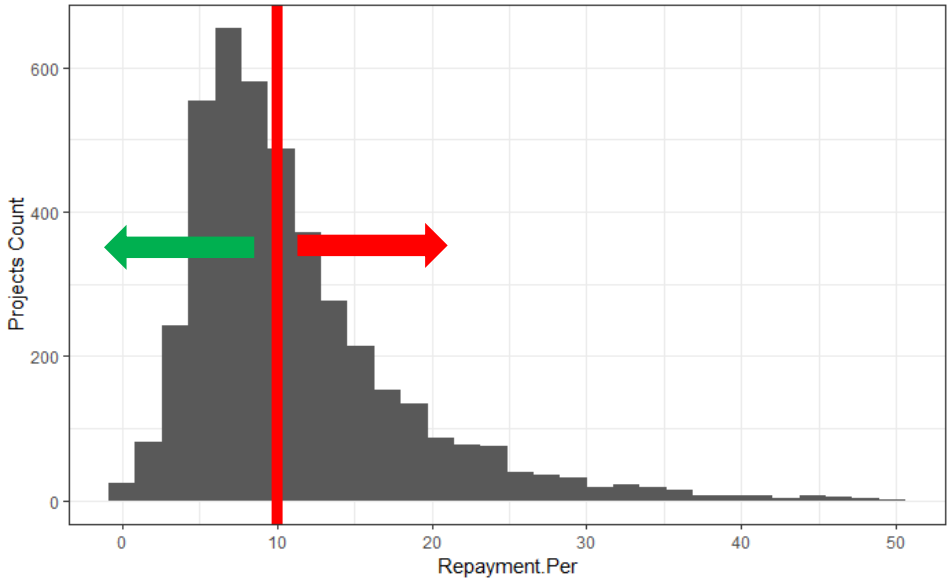


Savings Certificates demand (2019):
2 005 GWh

Savings Certificates demand (2020):
2 772 GWh

753	1 454	21
Required investments, million euros	Energy savings, GWh/year	Area, million sq. m.

Trends & Insights for Public Stakeholders



Projects to the right of the red line can not be financed by private entities under normal market conditions: less than 10 years, 5% i.r., client paying with energy savings

Financing	Projects	Invesments	t.CO2
Not Bankable	1 965	395 788 906	214 192
Bankable	2 315	352 362 140	337 704

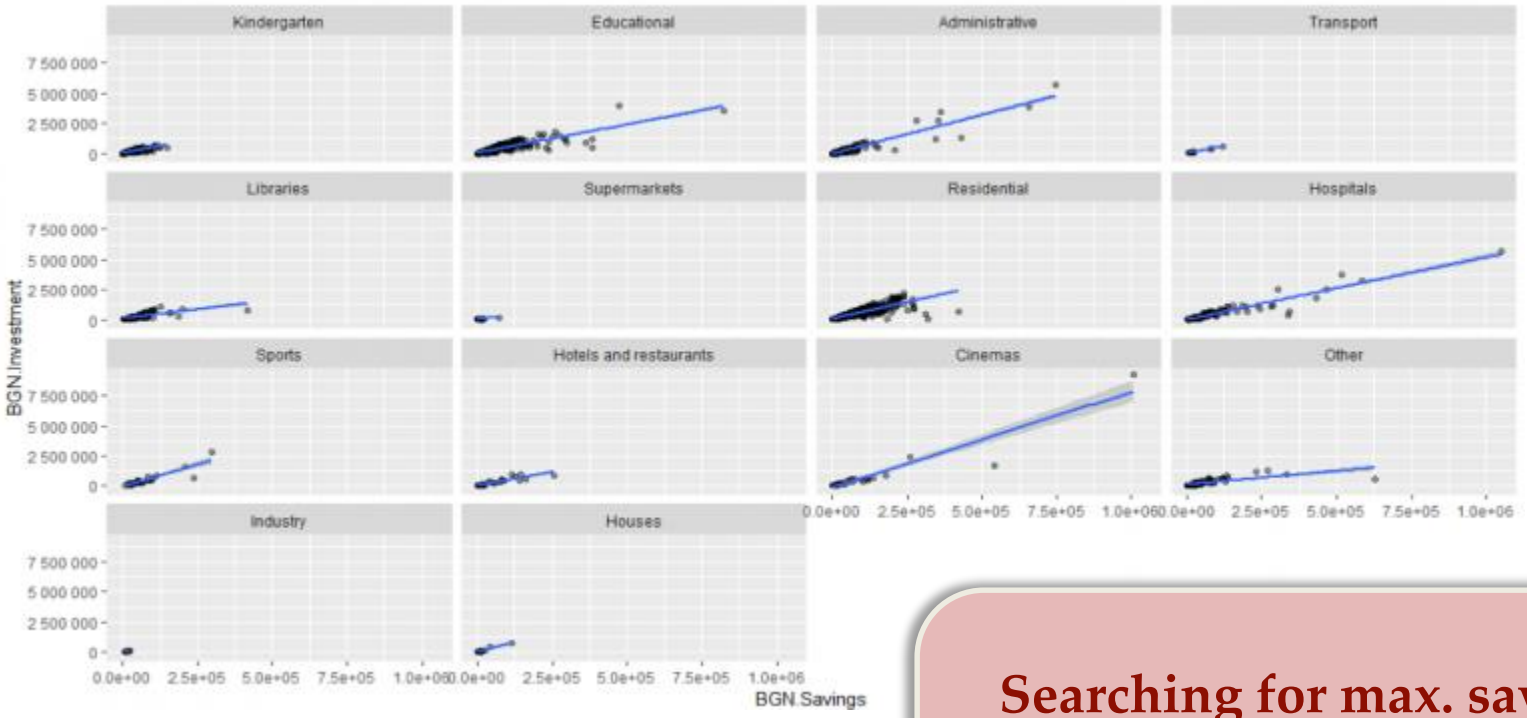
Grants are predominantly channeled in the „bankable“ segment, practically pushing away the private capital.

Recommendations for Public Stakeholders

Grants could be re-routed to subsidize excluded from the market projects to an extent to become reasonable to handle from entrepreneurs – ESCOs, Bank loans etc. In other words, repayment period of below 10 years would cost € 120 million.

Grant.Support	Repayment.Per
10%	13.0
20%	11.1
30%	**9.3**
40%	7.7

Trends & Insights for Private Stakeholders



Searching for max. savings per min. investment in each building type and slices of floor areas

Recommendations for Private Stakeholders

Building.Type1	Rating	Area.Class	Value	Estimate
Libraries	D	less than 1 000	gem	0.425
Supermarkets	D	between 1 000 and 5 000	gem	0.369
Libraries	G	between 1 000 and 5 000	gem	0.356
Cinemas	F	between 1 000 and 5 000	gem	0.334
Hospitals	G	less than 1 000	gem	0.310
Libraries	D	between 1 000 and 5 000	dregs	0.070
Educational	G	less than 1 000	dregs	0.066
Sports	F	between 1 000 and 5 000	dregs	0.064
Residential	F	less than 1 000	dregs	0.063
Residential	D	less than 1 000	dregs	0.055

Take it!

Leave it!

Example of effective recommendation system based on building type, current energy rate, floor area class and amount of saving per unit of investment

Recommendations for Sales

Short CEO friendly indicative offer

- Energy Savings Measures, list
- Investment, euro
- Loan, euro
- i.r., %
- Repayment period, years
- Payments, euro/month

- **Cost of doing nothing, euro/year (*)**

- **Number of Records, Type of Sources, Data Transformations and Modeling applied are presented, so that the client can check for himself**

(*) avg. per building type/year built/economic region/floor area

Expected Results from Open Data

Financial institutions

Adapting (adaptable) financial products | „Scoring“ of EE projects | Deployed long-term financial instruments > 10 yrs.

ESCOs

Higher trust, leading to higher sales | Empowered EE consultants, leading to more projects entering the pipeline | Shared and transferable body of knowledge

EE Consultants

Ready-made list with prospective clients and buyers of EE projects/EE savings | Higher trust, leading to higher sales | Effective Recommendation Systems

Energy Traders

either outsource to Financial institutions | and/or outsource to ESCOs | and/or outsource to EE consultants | or work on their own to fulfill their obligations

Limits of the Analyses

- ✓ Estimates for all 23 EU countries have not been provided
  - We presume that due to analogous regulations in all the EU states the outlined strategy could be easily by transferred and scaled | CEE states are planned as a next step
- ✓ Just one data source used for analyses
  - Only SEDA data base has been used | BGEEF and DEEP data bases are planned to be added as a next step
- ✓ CEO-friendly one pager application
  - Marketing tool is planned to be implemented as a next step, loading BGEEF and DEEP databases | Training workshops are also in the project pipeline at a final stage

Resources

[1] Source code repository to reproduce/develop further the presented analyses: https://github.com/kirilraytchev/EEDevFinance

[2] NIS open data: https://www.seea.government.bg/documents/SG%20_Final_BG.html

[3] BGEEF open data: https://www.bgeef.com/bg/projects-and-case-studies/municipalities/

[4] DEEP open data: https://deep.eefig.eu/

[5] SEDA annual reports https://www.seea.government.bg/bg/informatsionni-byuletini

[6] Public Procurement Agency open data: https://aop.bg

[7] Ministry of Finance open data: http://www.minfin.bg/bg/810

[8] Registry Agency open data: http://brra.bg/Default.ra