

# The economic impacts of SERVE retrofitting

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ENERGETSKA AGENCIJA  
NORTH-WEST CROATIA  
SJEVEROZAPADNE HRVATSKE  
ENERGY AGENCY

# Socio-economics – what is it?

- People, people, people!
- **People and economy**
- People and environment
- People and society (other people)
- Local communities in focus
- Regional (very specific) issues



# Objective

- Evaluate financial benefits from the energy retrofitting measures
- Integral part of the SERVE project (WP6 Socio-economic Analysis and Research)
- Economic analysis - key financial parameters such as financial savings, discounted payback periods, net present values, and internal rates of return of the investments

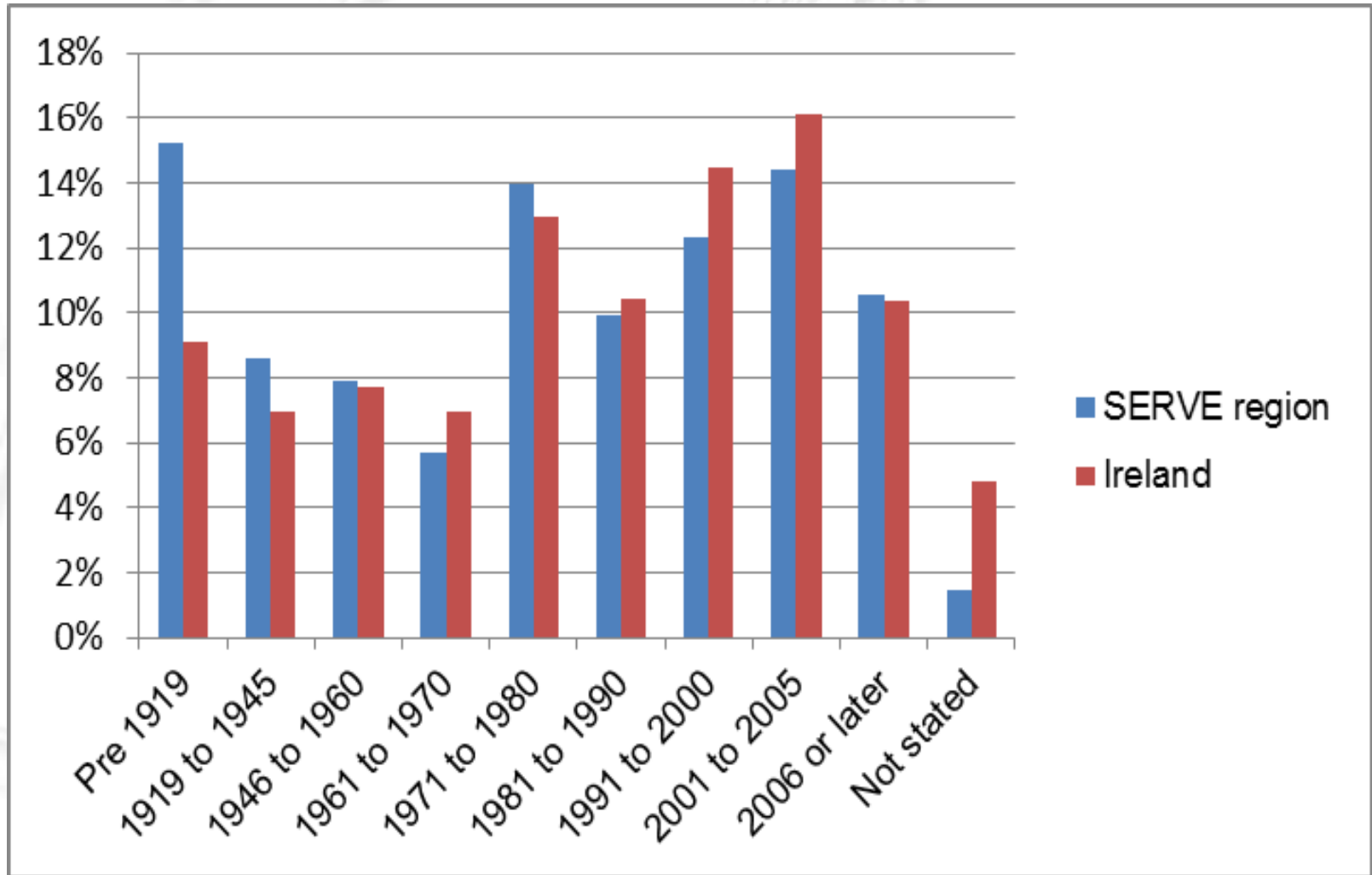


# Some key details of SERVE region

- Strong agricultural base - village and town structures typical for rural Ireland
- Owner-occupied homes (79.9%), 41.6% of permanent private households own their homes
- More pre-1919 housing stock than the national average (15.2% vs. 9.1%)
  - older houses less energy efficient
  - Low-income households tend to occupy more inefficient, older buildings (fuel poverty!)



# Permanent private households by year built

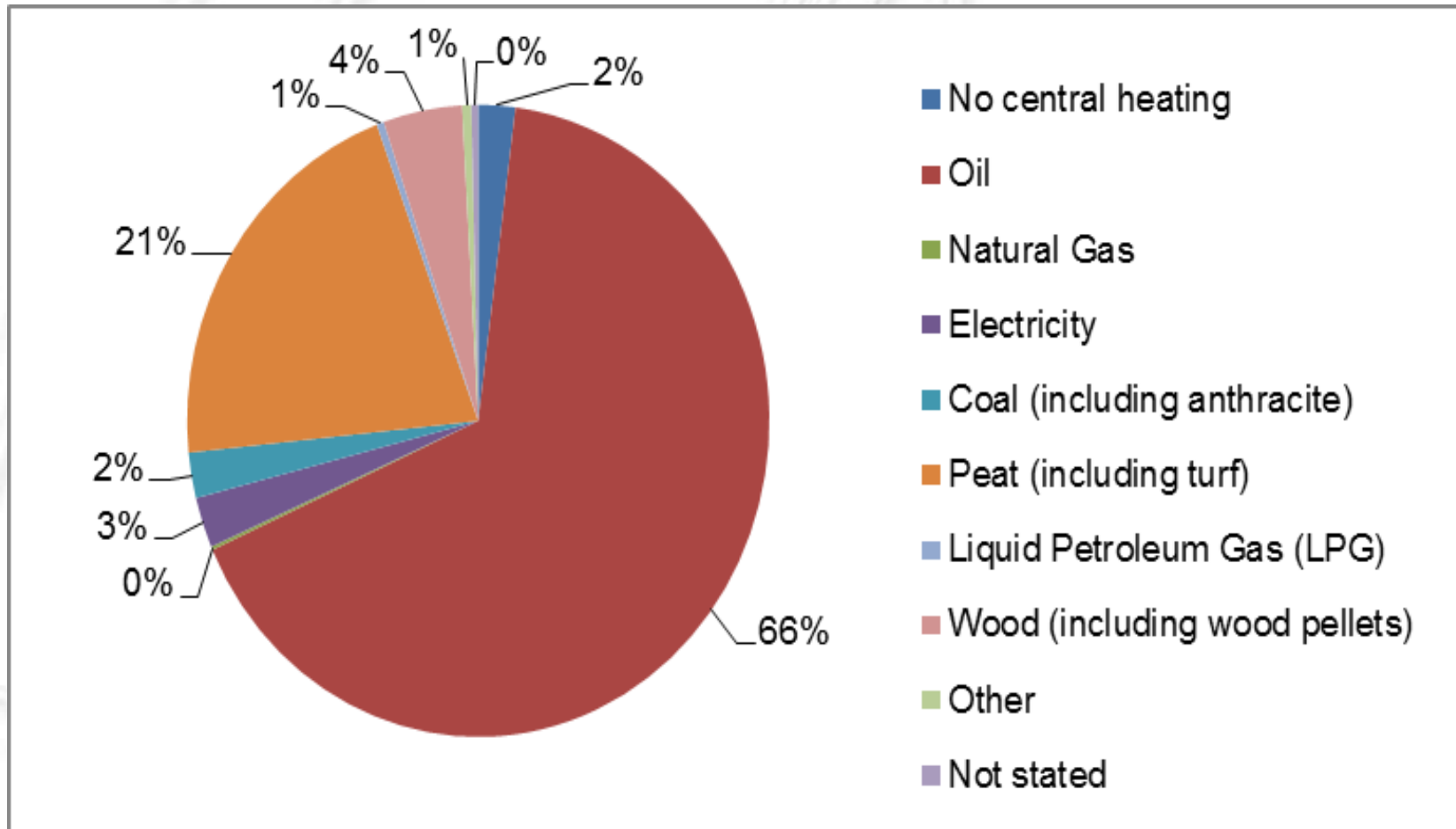


# SERVE region - specifics

- Fuel sources used for heating purposes – quite different than the national average
- Lack of connection to natural gas pipeline network = no *cheap* fossil fuel sources
- A chance for renewable energy sources (primarily wood and solar) to be viewed as a viable alternative to kerosene oil



# Permanent private households by central heating – SERVE region



# Grant schemes

- SERVE grant available to building owners willing to upgrade their properties
- National Home Energy Saving Scheme (HESS) and National Greener Homes Scheme were launched during the second phase of SERVE grant programme which presented a potential problem
- Challenge – both grants to be available to residents of the SERVE region





# Supported retrofitting measures

- Both energy efficiency measures and renewable energy sources were supported by SERVE grant
- Mandatory energy efficiency measures: attic and wall insulation, upgrade of heating controls
- Additional supported measures: external wall insulation, windows, advanced heating controls, high efficiency boilers, lighting..



# Supported retrofitting measures (2)

- Renewable energy sources: wood stoves, solar panels, biomass boilers, wind/PV demonstration systems
- Wood stoves were not supported by the National Greener Homes Scheme



# Specific eligibility requirements

- The building had to be built pre 2006
- Building size: at least 100m<sup>2</sup>
- Annual heating bill of €1,000 (minimum)
- Upgrading works had to result in a 40% reduction in energy use
- RES grants available to owners with a C1 rating on their home



# Economic analysis

- Retrofitting works on 318 buildings have been analysed (of total app. 600 applications)
- Total investment costs – 2,45 million Euro
- 1,01 million Euros of SERVE and national grant funds awarded
- Average energy savings achieved – 45%



# Economic analysis (2)

- Standard evaluation indicators were monitored (net present value, discounted payback period, internal rate of return)
- Financial indicators varied significantly depending on the type of retrofitting investments
- Generally, financial results were better than average for RES/RUE type of investments



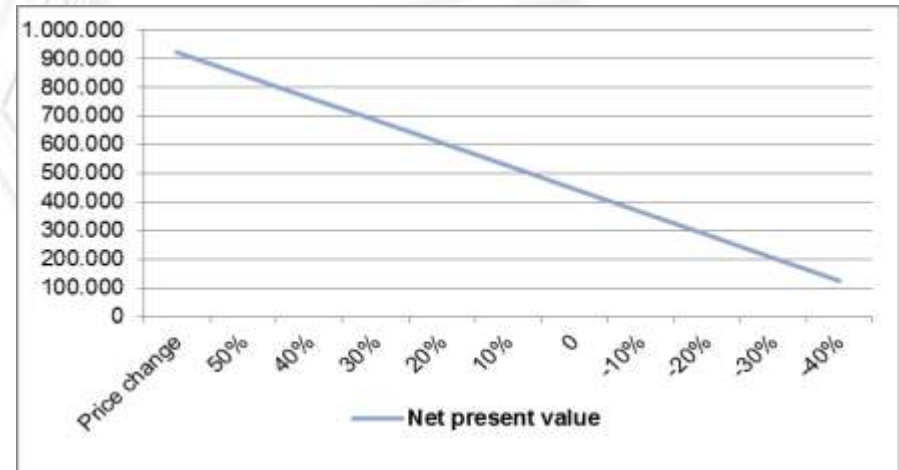
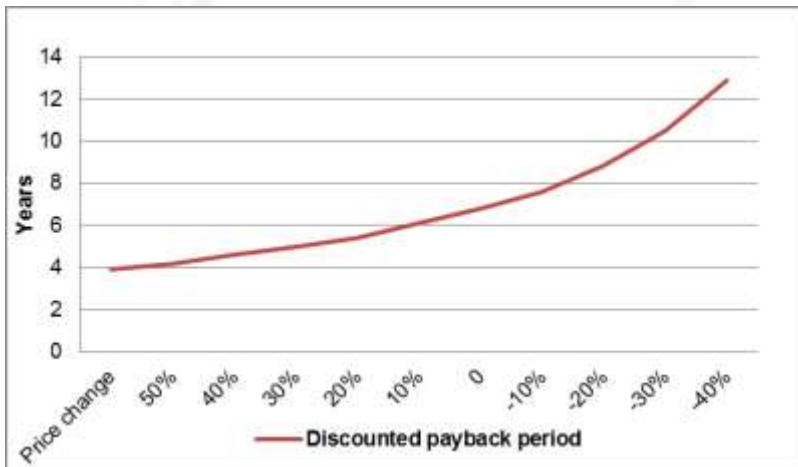
# Economic analysis (3)

- Good results can be attributed to high energy savings, high fuel prices (mostly kerosene) and large share of grant funding
- Average discounted payback period of investments:
  - 5 years (with grant funding)
  - 12.5 years (without grant funding)



# Sensitivity analysis

- Performed in order to determine the level of impact of fuel price change on project's NPV, payback period, and IRR results
- Investments were mostly insensitive to price changes due to a large share of grant funding which minimized the price risk for the investors



# Local money flow (1)

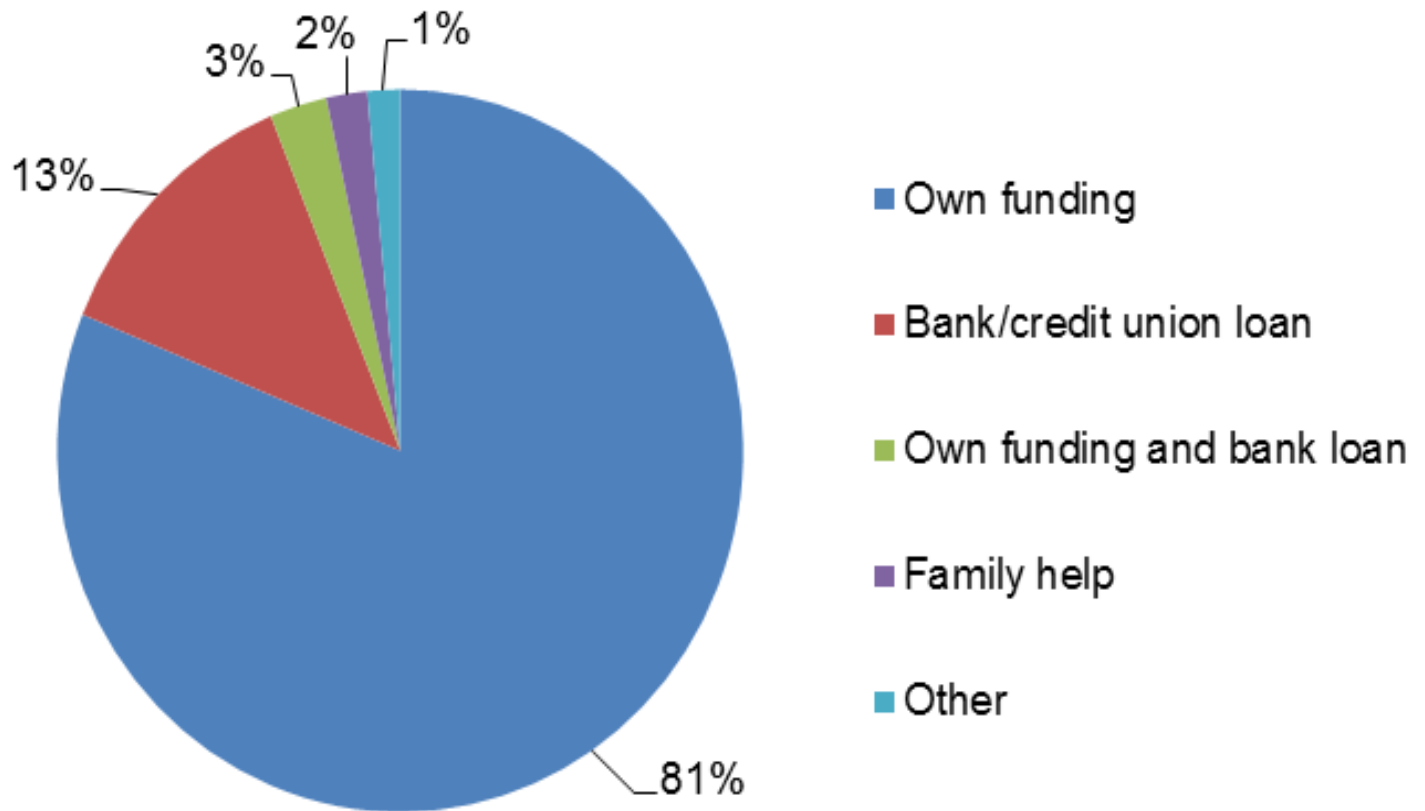
- By observing the origin of funding, taxation and location of companies that performed all the measures we can determine whether the project had an impact on local economy
- Surprising results:
  - Low level of bank funding
  - Solid share of local companies





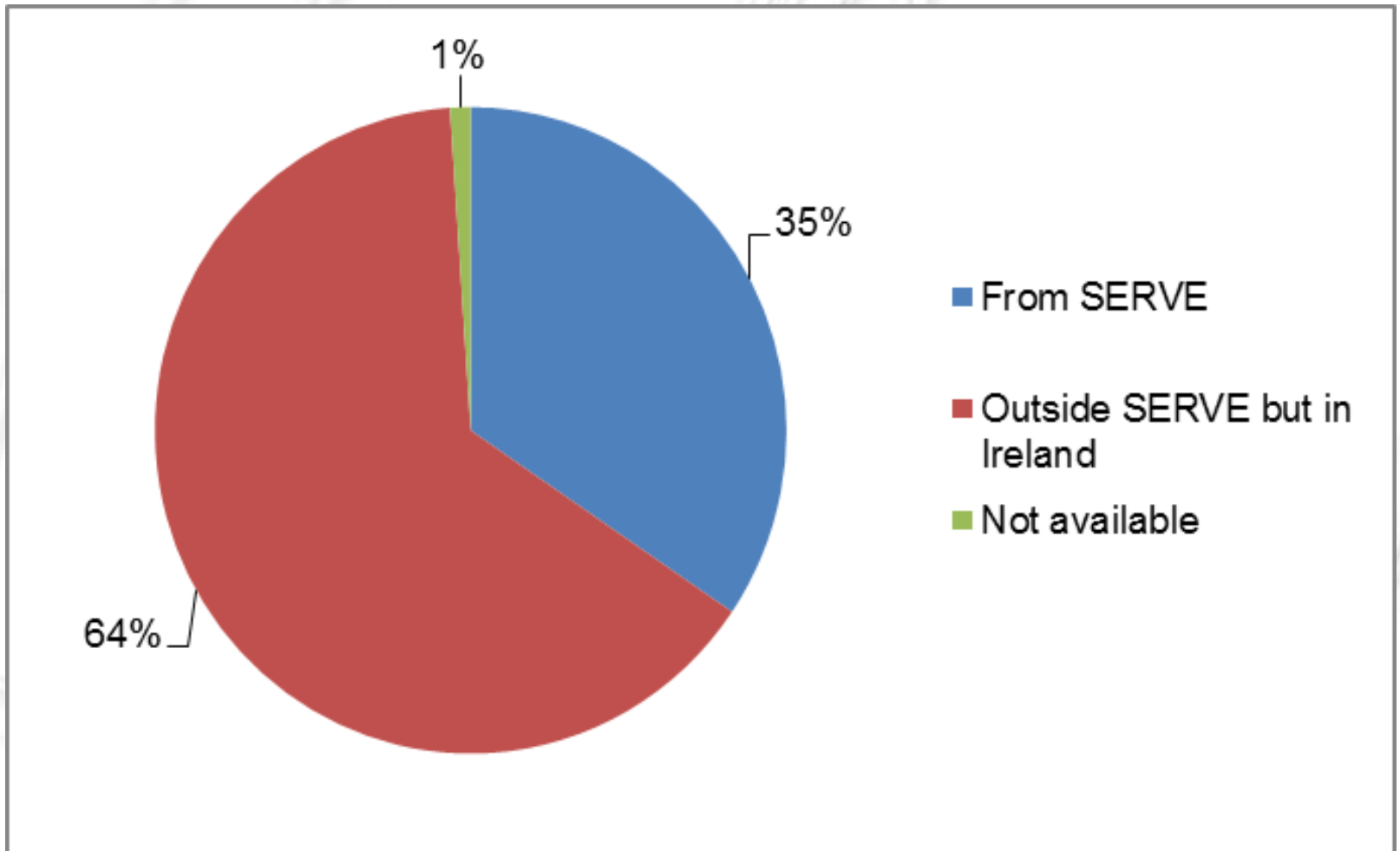
# Local money flow (2)

## Source of non-grant investment



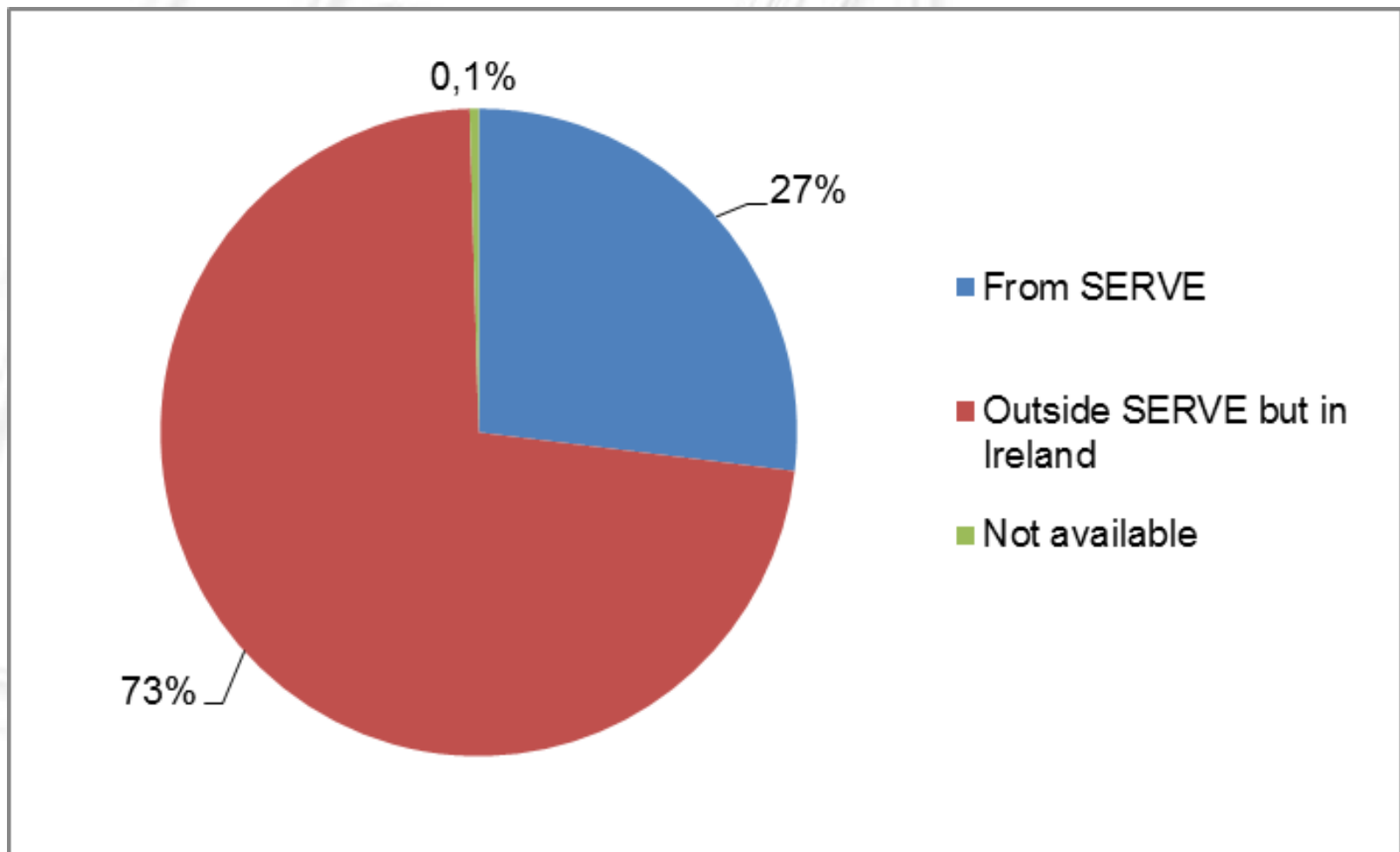
# Local money flow (3)

## Companies that performed RUE measures



# Local money flow (4)

## Companies that installed RE equipment



# Local money flow (5)

- No local taxes – could be a major influence on the fiscal outlook for local governments with large scale projects like SERVE
- Low level of bank funding – households have kept most of the financial gains from energy savings to themselves
- Very high amount of grant funding (3x the taxes paid) causing significant financial input to the region



# Conclusions

- Sustainable energy projects have high potential to make positive changes in economic development of rural territories
- Grant support is necessary to make investments more attractive to citizens and mitigate potential price/performance risks
- Involvement of local companies - key in supporting economies of local communities

