

Policy Assessment Tool - MCDA



Outline

- Background
 - Decision support tools
 - MCDA policy assessment tool
- Application of the assessment tool
 - Analysis of rankings
 - Live demonstration of tool
- Discussion

About MCDA

(multi-criteria decision analysis)

Decision Support Tools

- Several methods are available that use maths to help policy makers weigh up decisions
- Each has advantages/disadvantages
- Some methods
 - are *hidden* others are *transparent*
 - *engage* stakeholders - others do not allow much interaction

MCDA policy assessment tool

- Well-established and transparent
- Allows stakeholders to *engage* with the method so they *own* the decision proposed
- Use encouraged by Government
 - <https://www.gov.uk/government/publications/green-book-supplementary-guidance-multi-criteria-decision-analysis>
- There are several different MCDA methods

How does the MCDA tool work?

- Compares policy options across several criteria
- It integrates the **information** about impacts of policies on the criteria with
- the **relative importance** attached to each criterion to give an **overall performance score** for each option

Elements of the MCDA

1. Policy options
2. Criteria
3. Information about impacts (*ratings*)
4. Ranking of each criterion turned into a *weight*
5. Combining these *ratings* and the *weightings* to determine policy performance scores (*scores*)
6. A method to deal with *uncertainty and variation*
7. *Rules about the criteria, their independence and getting the weightings*

Using the policy assessment tool



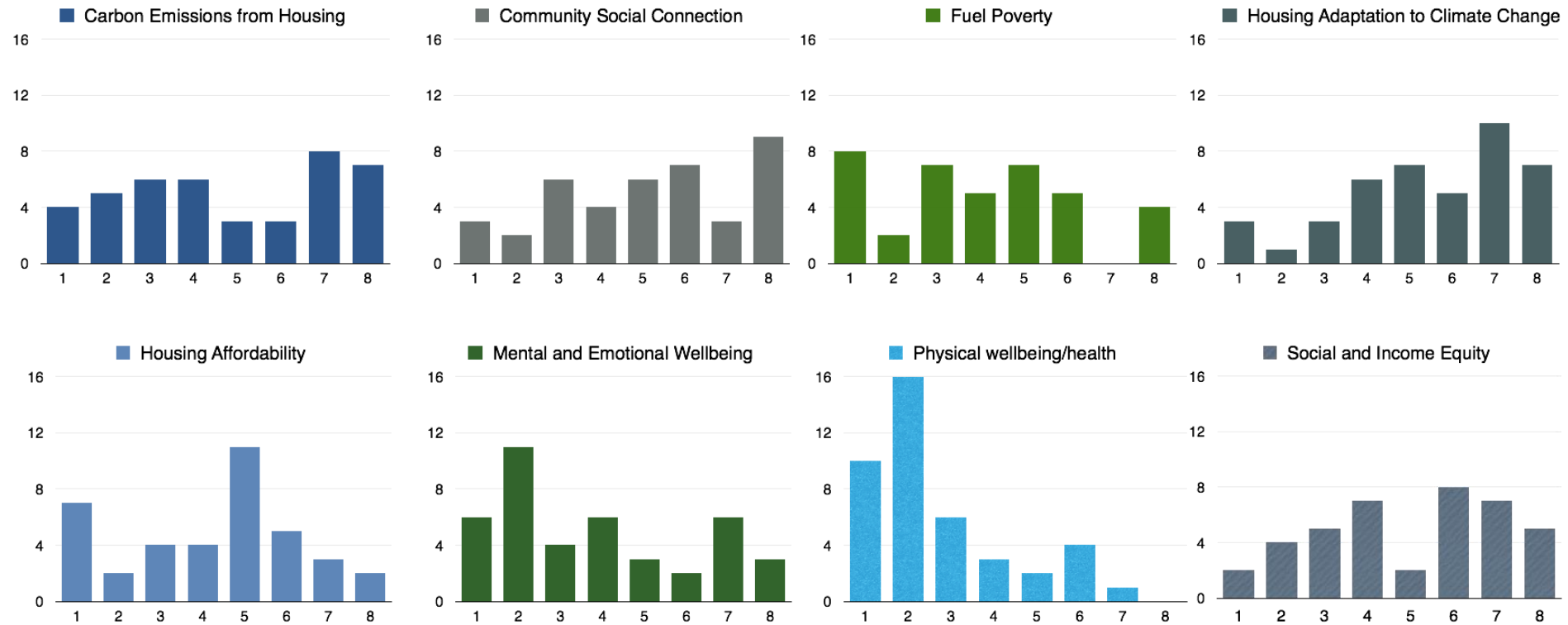
Criteria for Comparing Policy Options

1. Carbon emissions from housing
2. Community social connection
3. Fuel poverty
4. Housing adaptation to climate change
5. Housing affordability
6. Mental and emotional wellbeing
7. Physical wellbeing/health
8. Social and income equity
9. (policy coherence)

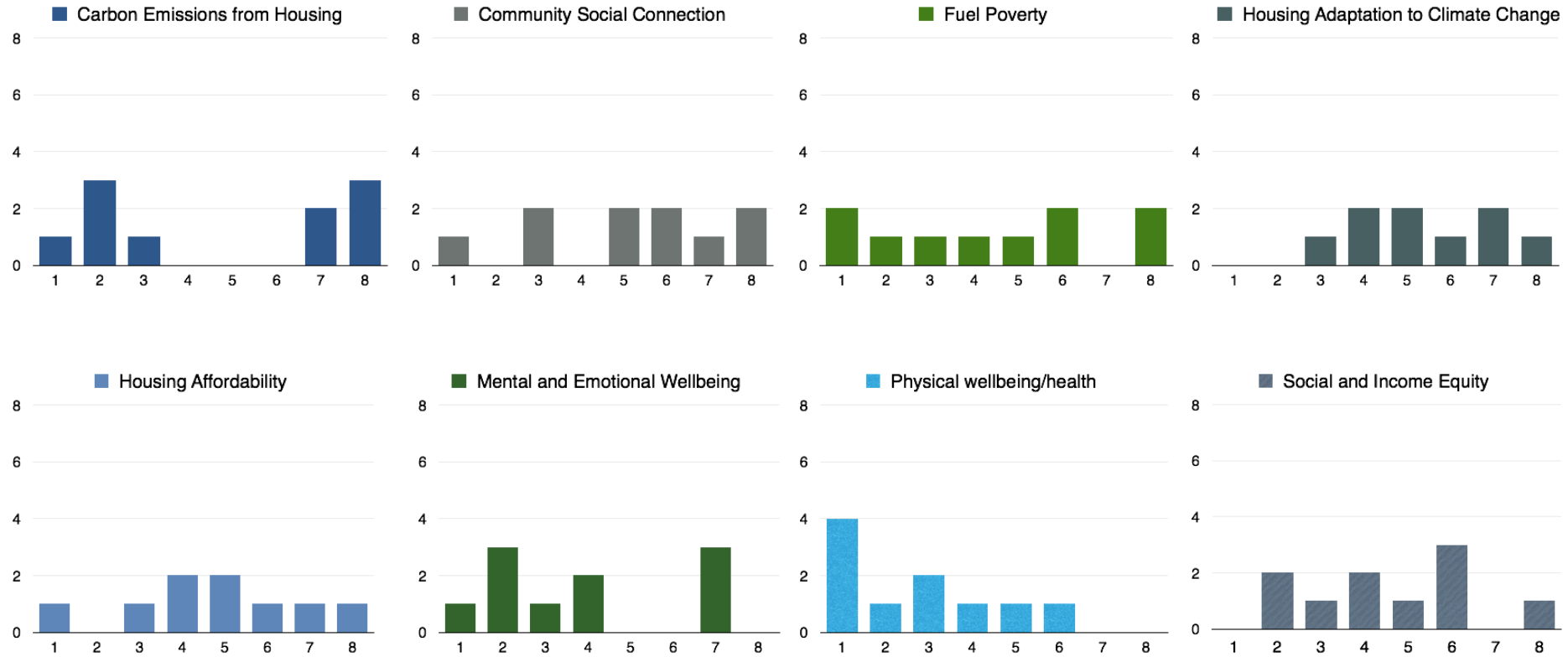
Ranking the criteria

- Policy makers need to state preferences
- Policies inevitably involve trade-offs
- Trade-offs are open rather than hidden
- We can test how sensitive the performance of a policy is to these preferences

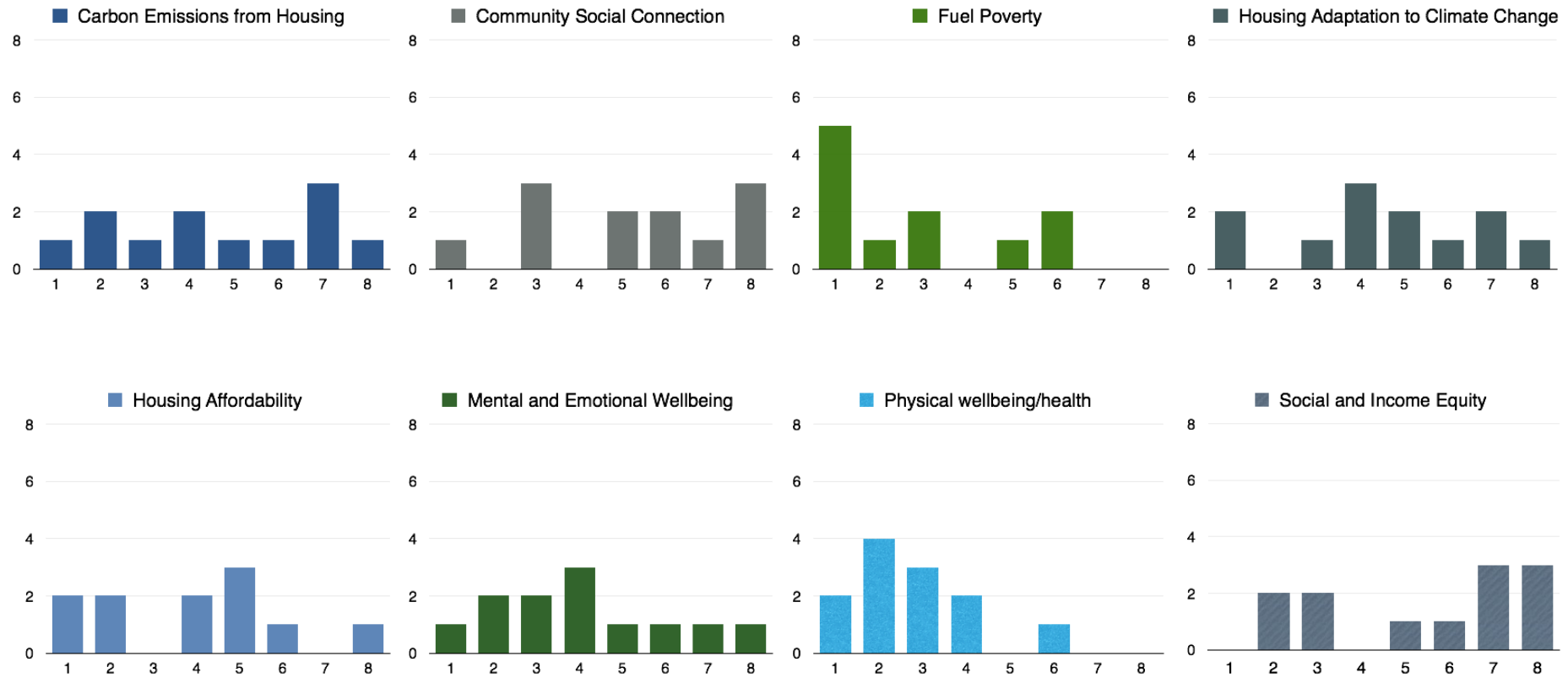
Distribution of Ranks (All Groups)



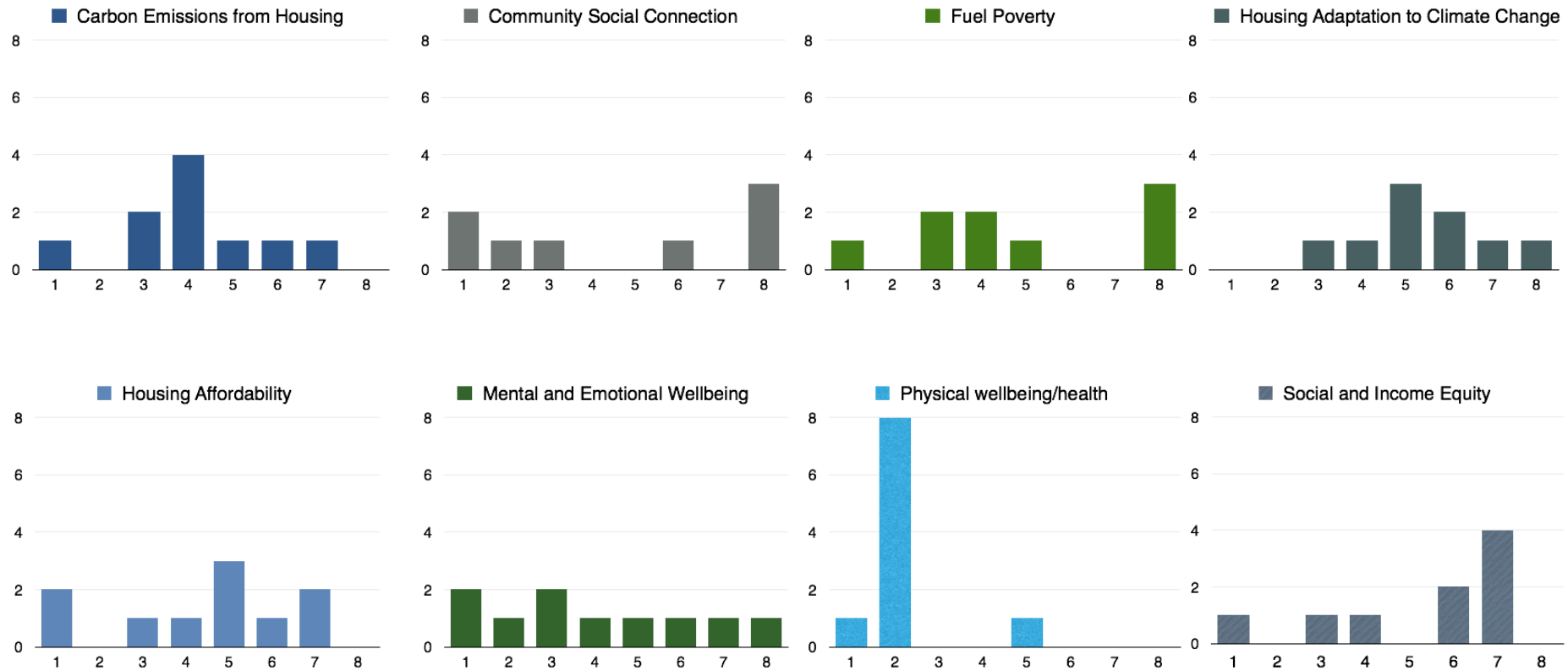
Distribution of Ranks (Policy Group)



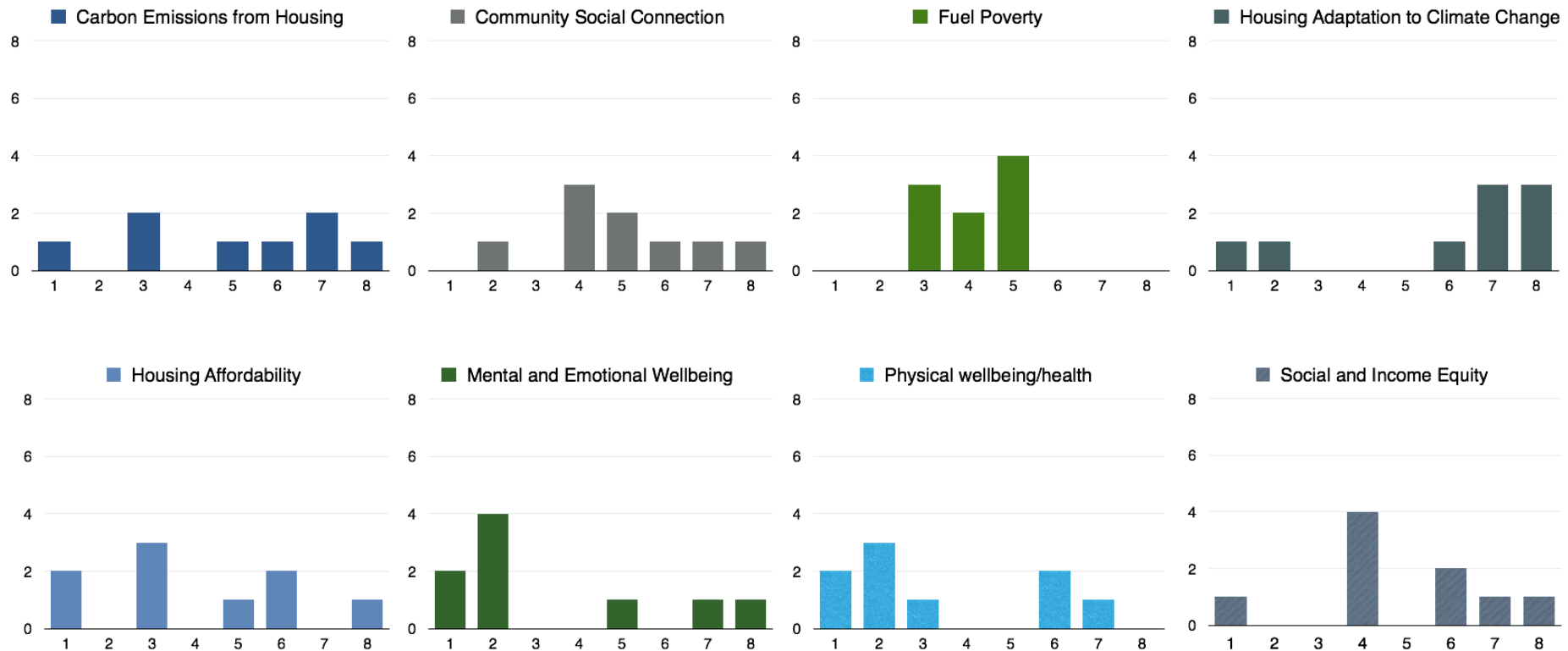
Distribution of Ranks (NGO Group)



Distribution of Ranks (Industry Group)



Distribution of Ranks (Academics Group)



Preferences turned into “weights”

Use an established method to convert ranks to weightings such that:



- None can be the same and are ordered
- They all add up to 1
- We used a method that spread the weights evenly

What do the weights mean?

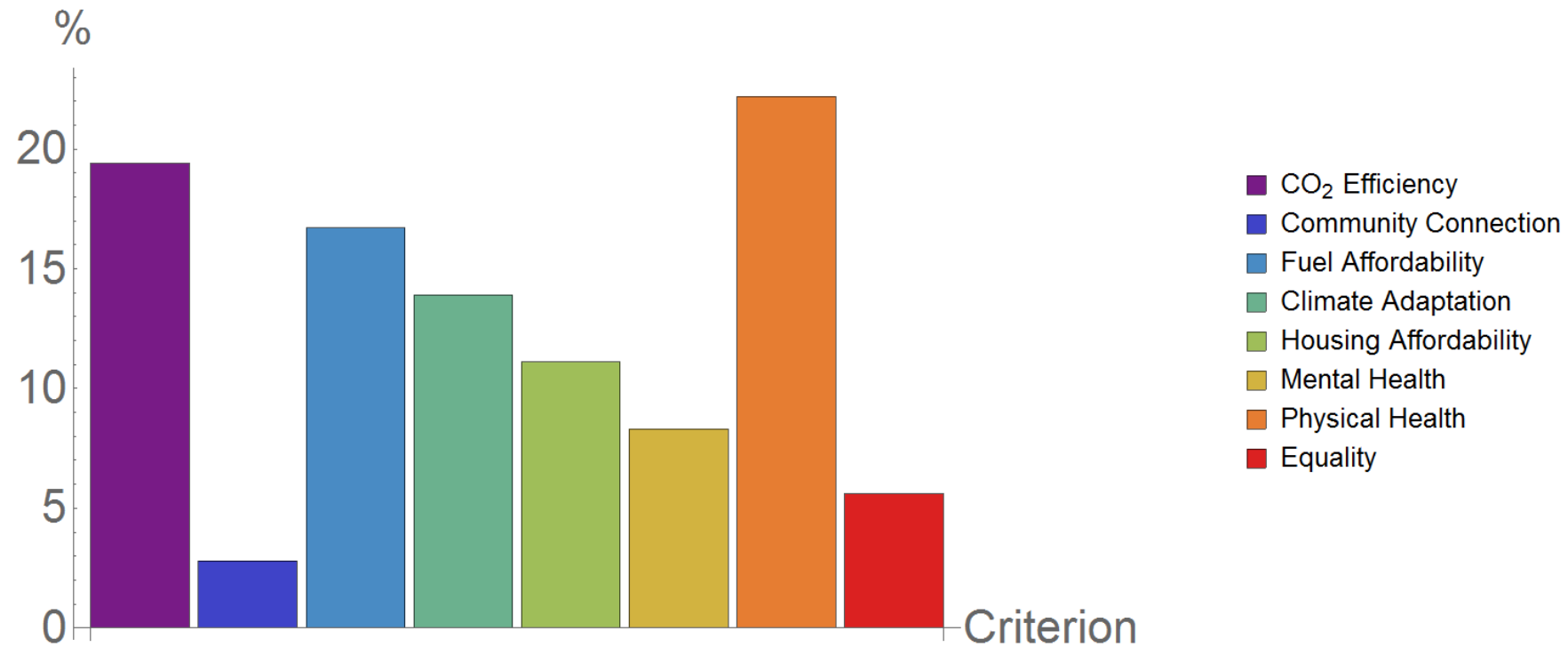
If we have three criteria (A,B,C) with weights 0.1, 0.3, 0.6, respectively, then

- Criterion C is 6 times as important as criterion A and twice as important as criterion B
- Criterion B is three times as important as criterion A

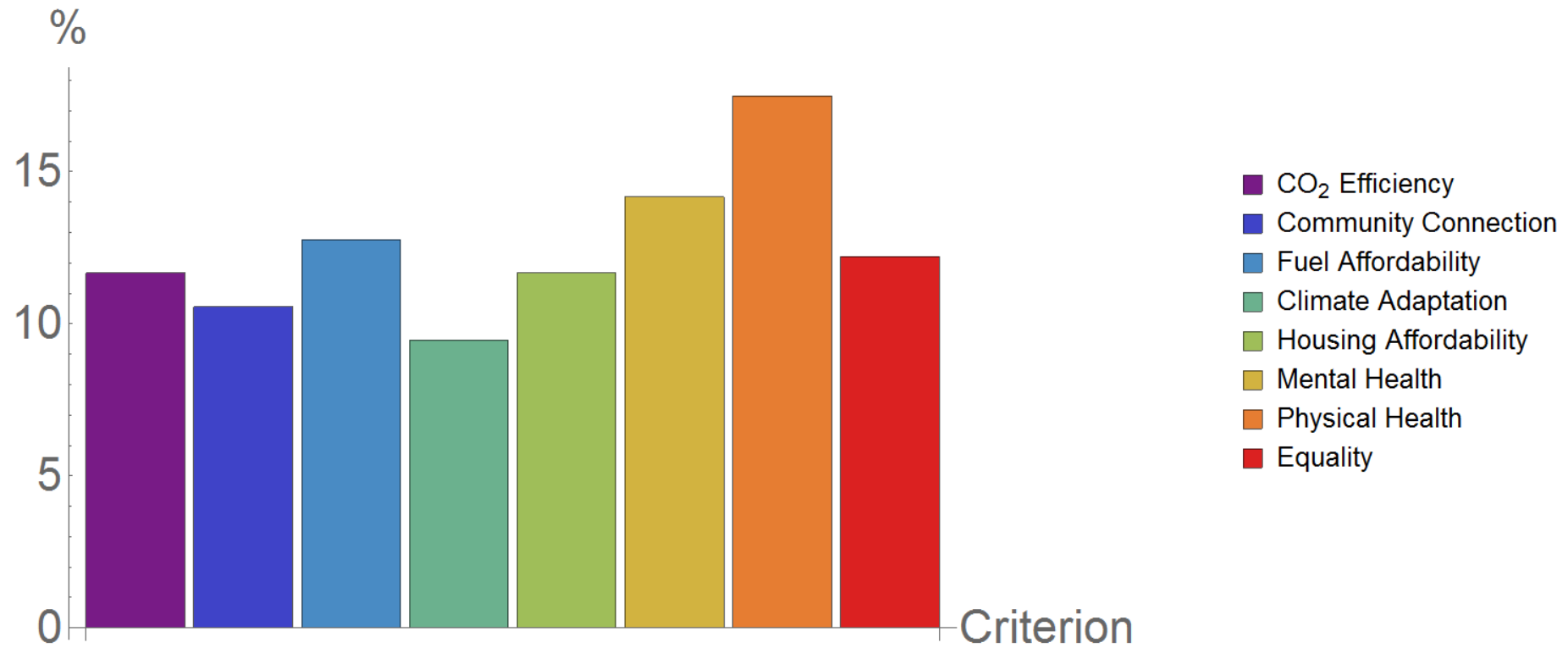
Redefine Two of the Criteria

- Carbon emissions from housing  • Carbon efficiency
- Community social connection
- Fuel poverty  • Fuel affordability
- Housing adaptation to climate change
- Housing affordability
- Mental and emotional wellbeing
- Physical wellbeing/health
- Social and income equity

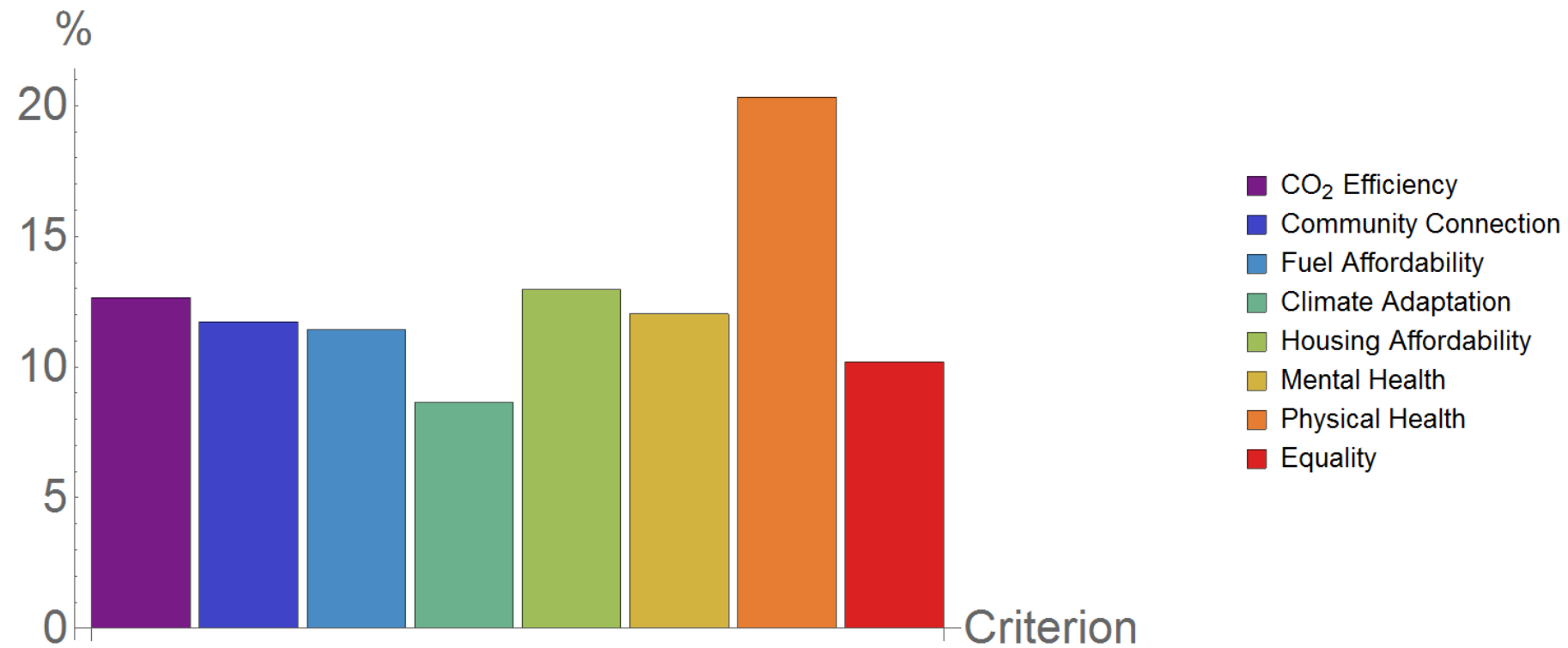
Weighting (An Individual NGO)



Aggregate Weightings (Policy Group)

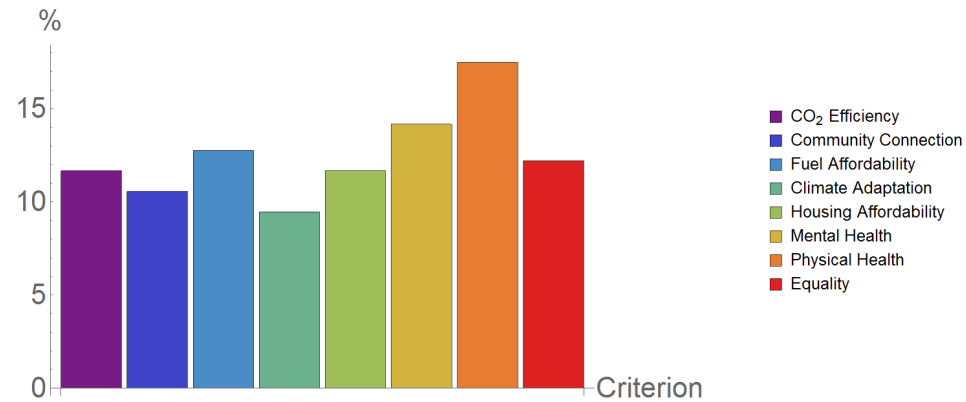


Aggregate Weightings (Industry Group)

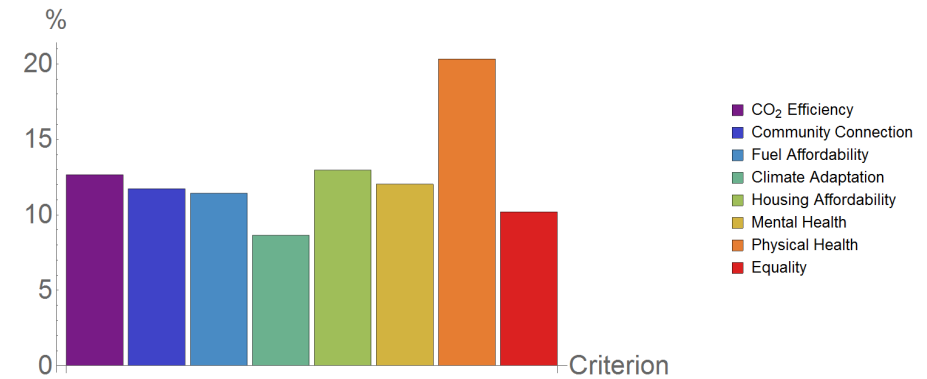


Comparison of Weightings

Policy Group



Industry Group



Live demonstration



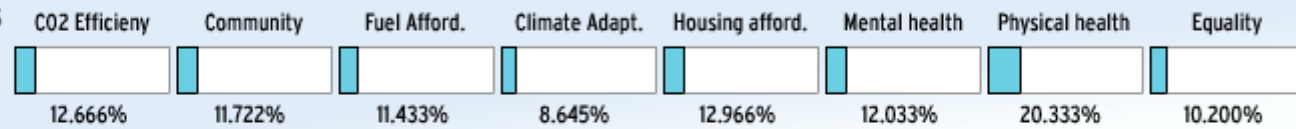
Policy Analysis Long Term (Industry Group)



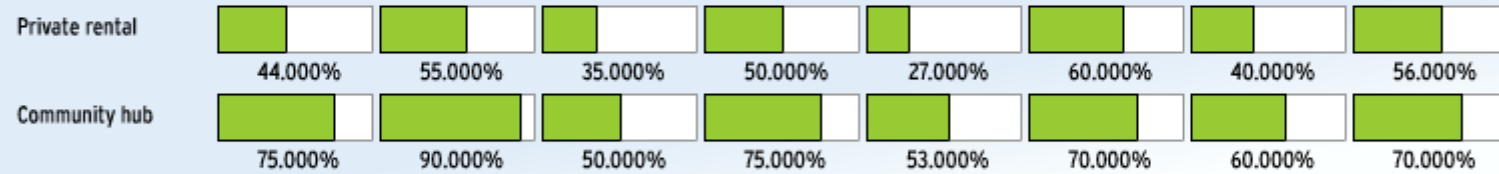
Scores



Weightings



Ratings



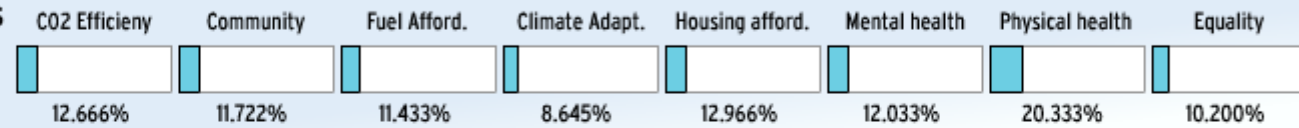
Policy Analysis Short Term (Industry Group)



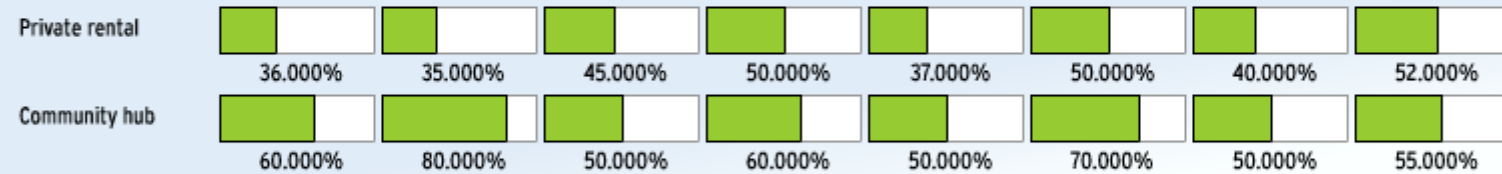
Scores



Weightings



Ratings



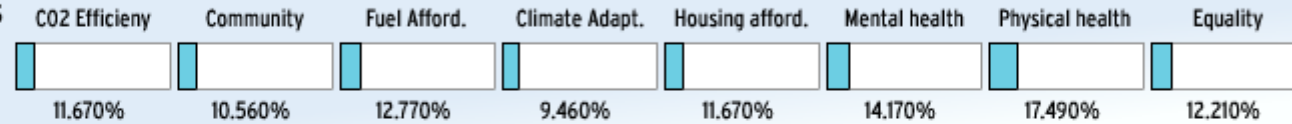
Policy Analysis Long Term (Policy Group)



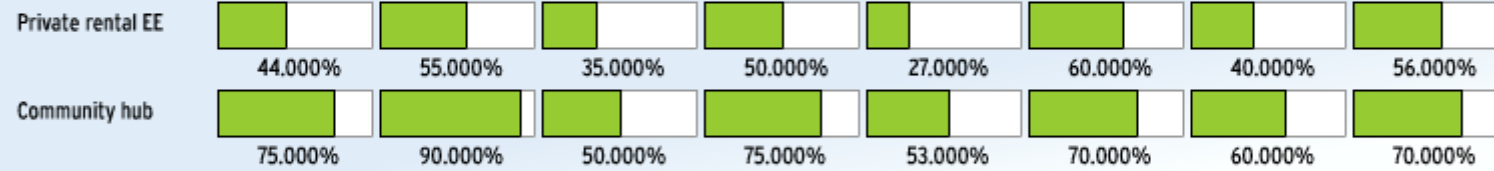
Scores



Weightings



Ratings



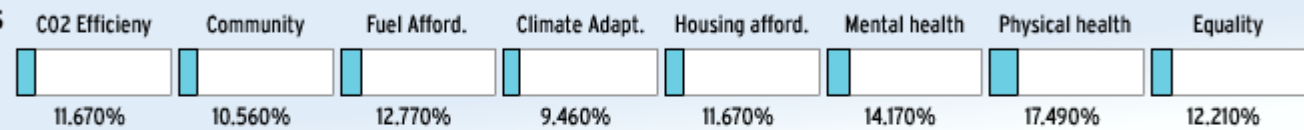
Policy Analysis Short Term (Policy Group)



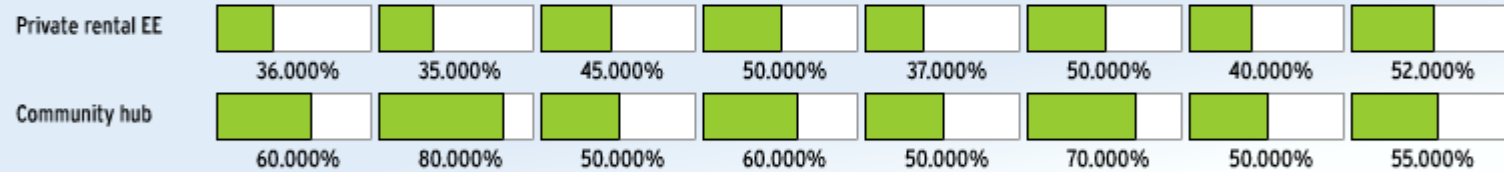
Scores



Weightings



Ratings



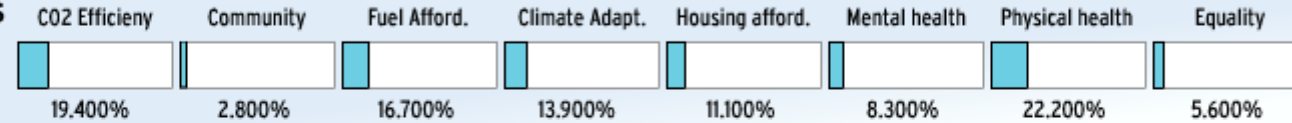
Policy Analysis - Long Term (An NGO)



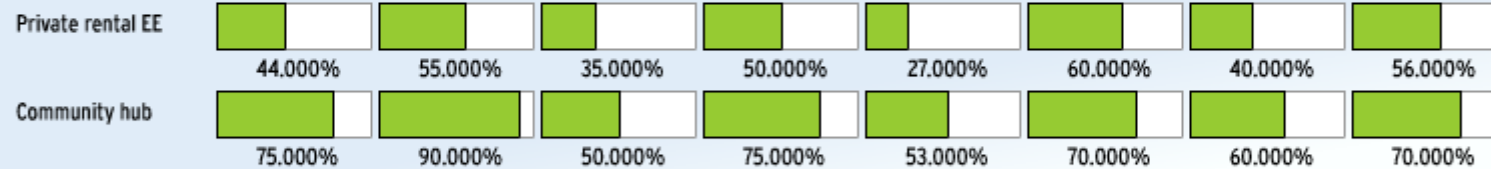
Scores



Weightings



Ratings



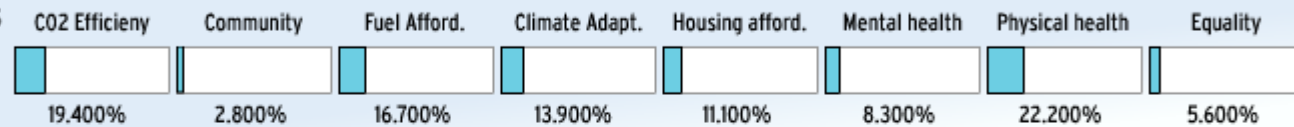
Policy Analysis Short Term (An NGO)



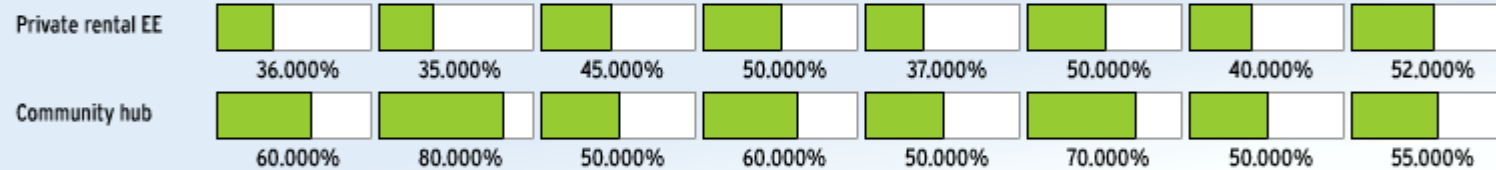
Scores



Weightings



Ratings



Discussion

