

# Onshore Wind Energy: Innovative Approaches to Achieving a Social License

Community ownership and citizen  
participation: What might work?

Dr. Bernadette Power

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*23rd November 2023*




# Community Engagement in Wind Energy: Innovative approaches to achieving a social license to operate (CoWind)


## Final Report



Prepared by: Dr. Bernadette Power, Dr. Geraldine Ryan, Dr. John Eakins, Dr. Ellen O' Connor, Dr. Gordon Sirr,  
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Energy Policy  
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## An analysis of the factors affecting Irish citizens' willingness to invest in wind energy projects

Gordon Sirr<sup>a d</sup>  , Bernadette Power<sup>a d</sup>, Geraldine Ryan<sup>b d</sup>, John Eakins<sup>a d</sup>, Ellen O'Connor<sup>a d</sup>, Julia le Maitre<sup>c d</sup>





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## Empowering onshore wind energy: A national choice experiment on financial benefits and citizen participation

Julia le Maitre<sup>a b</sup>  , Geraldine Ryan<sup>a b</sup>, Bernadette Power<sup>a b</sup>, Ellen O'Connor<sup>a b</sup>



Renewable and Sustainable Energy Reviews  
Volume 189, Part A, January 2024, 113839







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## Do concerns about wind farms blow over with time? Residents' acceptance over phases of project development and proximity

Julia le Maitre<sup>a b</sup>  , Geraldine Ryan<sup>a b</sup>, Bernadette Power<sup>a b</sup>

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Renewable Energy  
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## Mechanisms to promote household investment in wind energy: A national experimental survey

Julia le Maitre  , Geraldine Ryan, Bernadette Power, Gordon Sirr

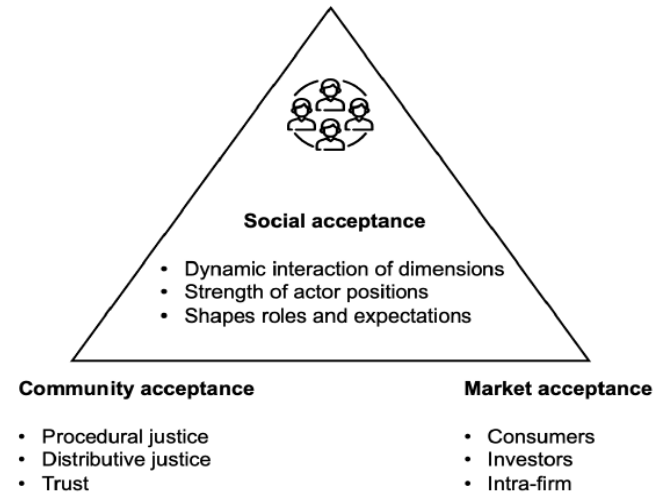
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# Social Acceptance



## Socio-political acceptance

- By the public
- By key stakeholders
- By policymakers



*The triangle of social acceptance of renewable energy innovation*

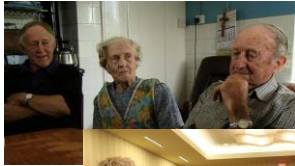
*Wüstenhagen et al., 2007*

# Community Acceptance



**Social acceptance** is one of the key barriers to scaling up on-shore wind energy installations – in Ireland (Hyland and Bertsch, 2018) as well as in other countries such as Denmark (Johansen, 2021), Switzerland (Vuichard et al., 2019) and Germany (Lienhoop, 2018).

# Co-Wind Project – Innovative Approaches to Achieving a Social License



Community  
Engagement

Community  
Benefit Funds

Co-ownership  
/Co- investment

# Policy Background for Citizen Involvement

- The Irish Energy White paper (2015)
- Recommendation 6 arising from the Energy Session held during the Citizens Assembly on Climate Change in 2017 (*The State should act to ensure the greatest possible levels of community ownership in all future renewable energy projects by encouraging communities to develop their own projects and by requiring that developer-led projects make share offers to communities to encourage greater local involvement and ownership*)
- The supported network of Sustainable Energy Communities throughout the country providing a path for the emergence of Renewable Energy Communities
- Provisions under the Renewable Electricity Support Scheme (RESS) launched in 2019;
  - The inclusion of mandatory community benefit schemes for all renewable developments participating in RESS auctions.
  - The Renewable Energy Communities enabling framework.

# Objectives of Co-Wind Project

## Community Engagement

Timing &  
forms of engagement  
Barriers to  
engagement  
Social License

## Benefit Sharing

Impact on  
acceptance  
Preferences for the  
distribution &  
governance of the  
fund

## Co-ownership/Co- investment

Citizens willingness  
to invest  
Types of community  
ownership/co-  
ownership  
arrangements

How do citizens **trade-off** these aspects and different features of **wind farm developments**?

Does **familiarity** affect citizens' willingness to accept wind farm developments?

Does citizens' willingness to accept wind farm developments vary **by proximity** and **stage of the development**?

# Mixed Methods Approach

## Primary Data Collection

### Quantitative

National Survey  
(Online)

Broad Societal  
Acceptance  
N=2,023

WF Community Survey  
(online)

Local Community  
Acceptance  
N=826

### Qualitative

Interviews with  
Stakeholders

Developers  
Communities  
Community Liaison  
Officers  
Policy makers etc.

## Secondary Data Collection

A review of third Party Appeals to An Bord Pleanála.

Databases on socioeconomic characteristics, Location and number of turbines etc.



# Community Ownership

## Templederry



Ireland's first community owned wind farm in Ireland supplying community power.

12 Years to build.

Foothills of Slieve Feilim since November 2012

Two turbines - generating about 15 GWh of electricity every year.

Community Power - Catalyse, part fund and project manage community owned, renewable energy facilities such as solar, wind, hydro and biomass

*A little bit on what we've been working on lately..*

*Seo cuid den obair a bhí idir lámha againn le tamall anuas..*

info@aranislandsenergycoop.ie  
Meitheamh 2023/ June 2023

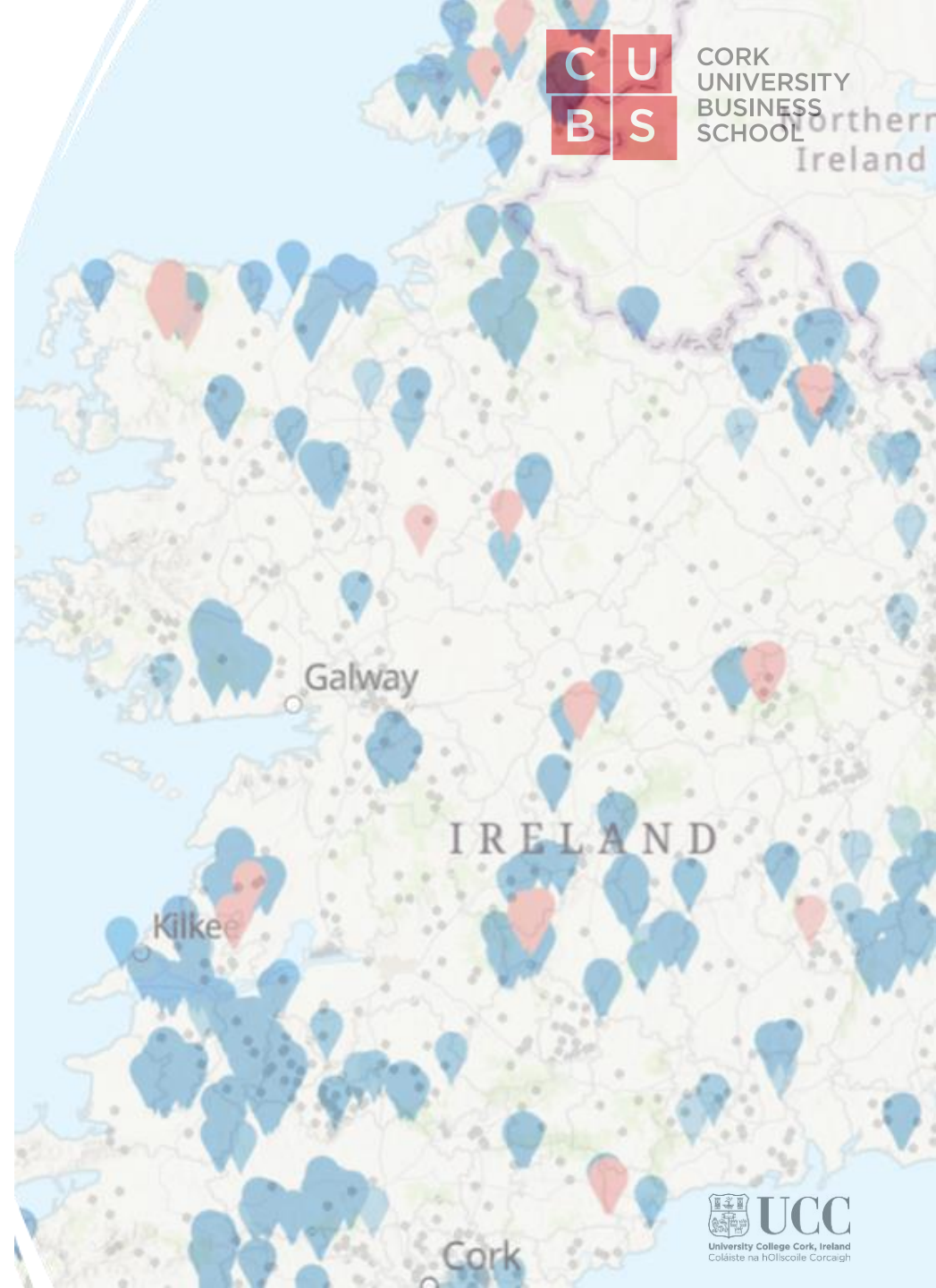
**Fuinneamh  
Oileáin Árann  
Aran Islands Energy**

## International research

- Community ownership/co-ownership can increase project acceptance.
  - Brennan et al. (2017), Ek and Persson (2014), Haggett et al. (2013), Jobert et al. (2007), Musall and Kuik (2011), Warren and McFadyen (2010), and Toke et al. (2008).
- Considerable challenges for progressing community owned/co-owned projects.
  - Lack of skills and expertise within communities (Haggett et al., 2014)
  - Lack of trust between communities and developers (Goedkoop and Devine-Wright, 2016).

## Questions addressed on Community Ownership/co- ownership

1. Does the idea of community ownership/co-ownership increase wind farm acceptance?
2. Are citizens willing to volunteer their time to help establish and manage community owned/co-owned projects?
3. Are citizens willing to invest their money in community owned/co-owned projects?
4. What type of co-ownership arrangement might work best?

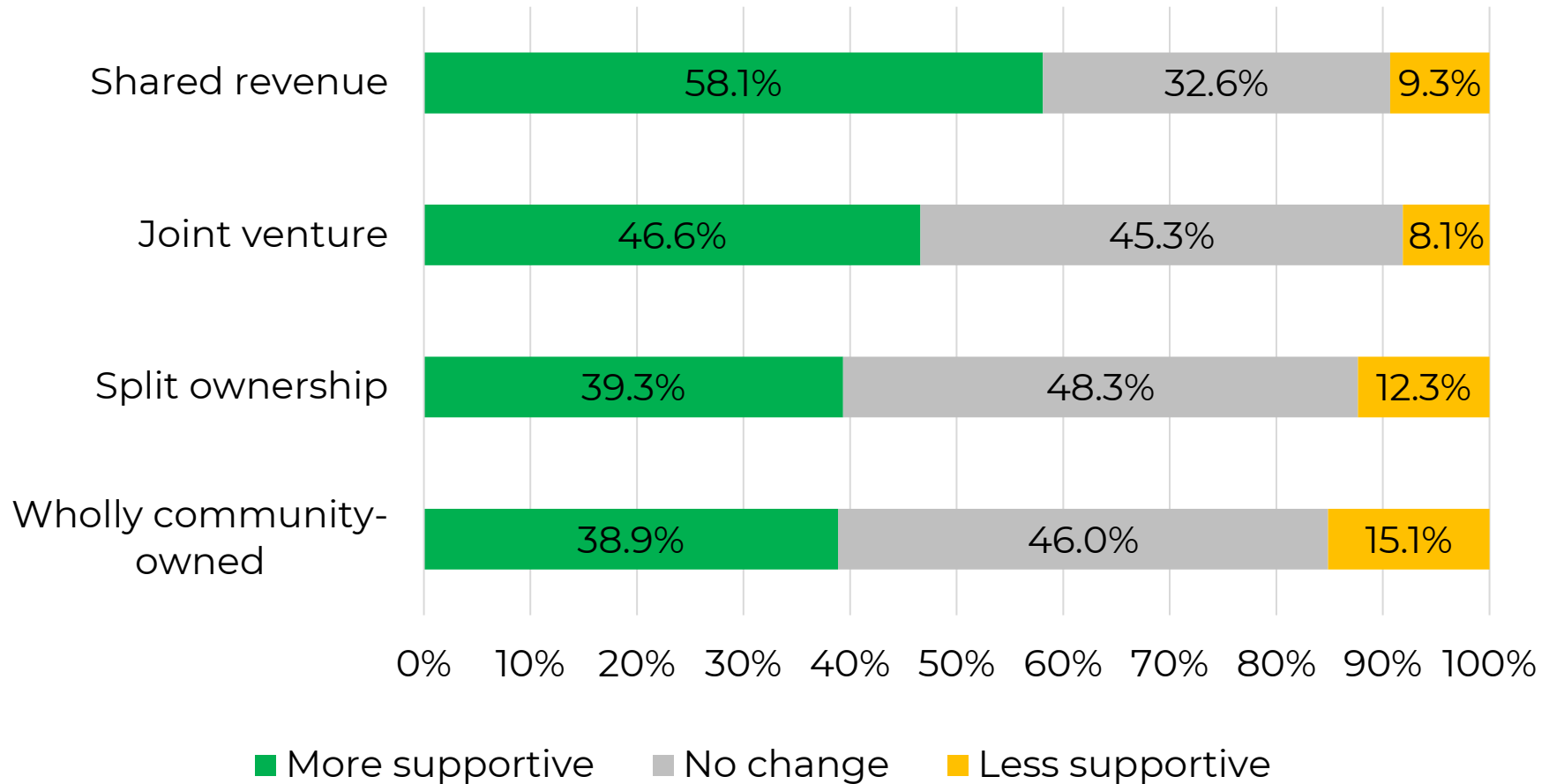


# Acceptance under different types of community ownership/co-ownership arrangements

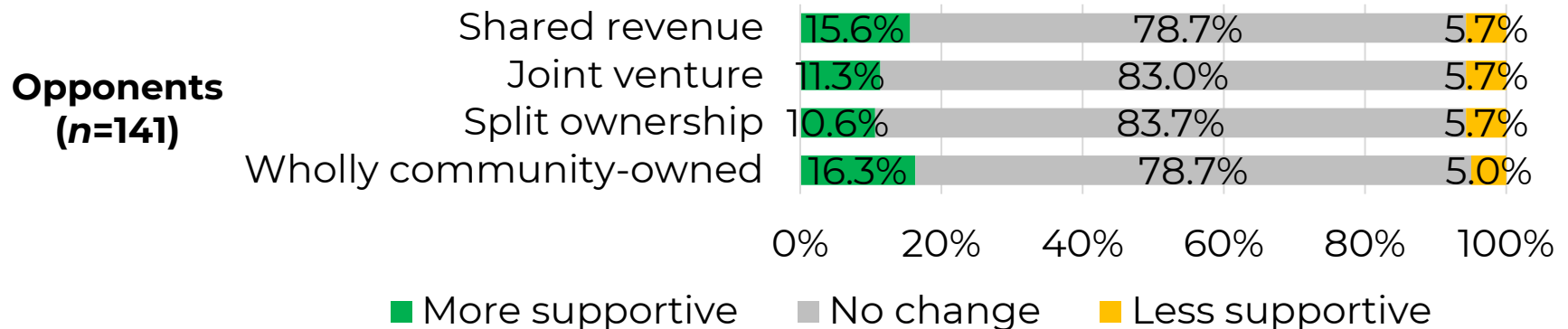
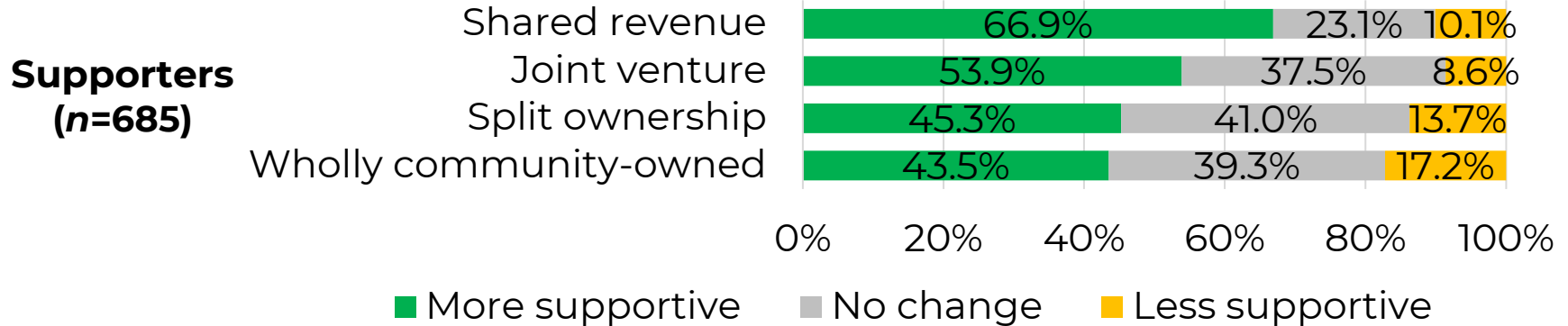
*Would you be more or less supportive of the local wind farm under the following community ownership/co-ownership arrangements?*

Type of arrangement	Description of arrangement
Wholly community-owned	<ul style="list-style-type: none"><li>• Community owns the entire wind farm.</li><li>• Community is fully responsible for managing the wind farm.</li></ul>
Split ownership	<ul style="list-style-type: none"><li>• Community owns 20% of the total number of turbines e.g. 1 out of every 5 turbines.</li><li>• Community is fully responsible for managing these turbines.</li></ul>
Joint venture	<ul style="list-style-type: none"><li>• Community owns a 20% share of the entire wind farm.</li><li>• Community is partly responsible for managing the wind farm.</li></ul>
Shared revenue	<ul style="list-style-type: none"><li>• Community receives 20% of the revenues from the wind farm.</li><li>• Community does not own/manage any of the wind farm.</li></ul>

# Change in acceptance under different types of community ownership/co-ownership arrangements

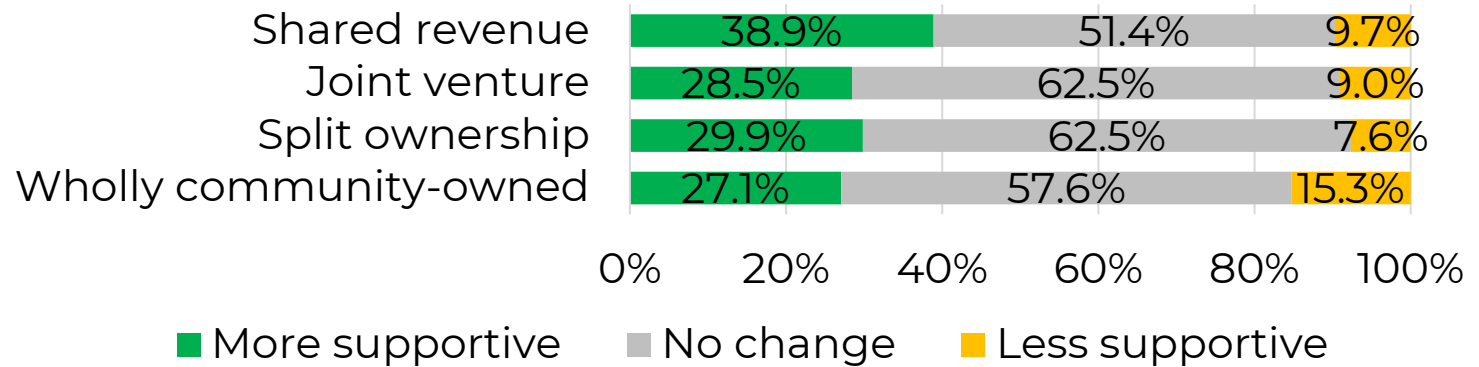


# Change in acceptance for supporters and opponents

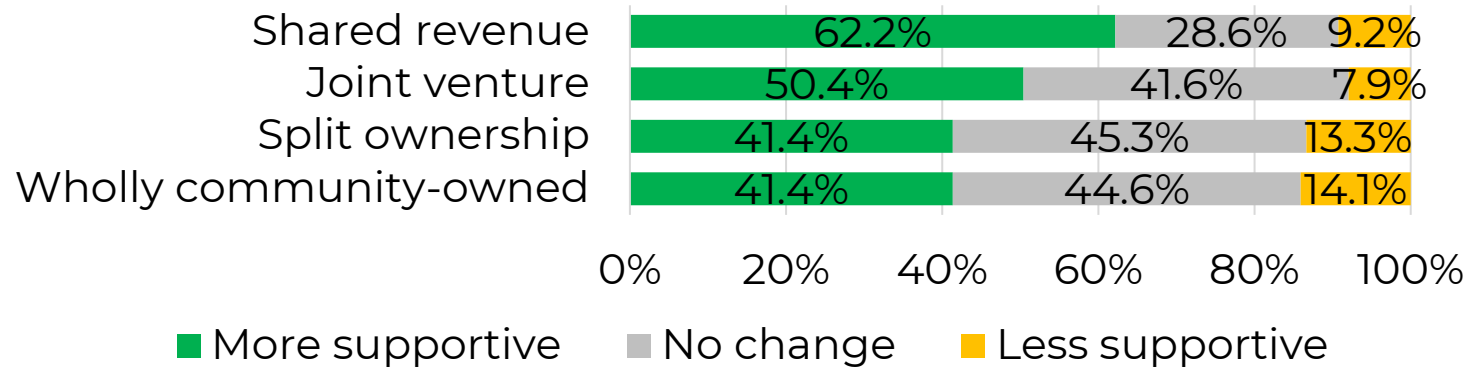


# Change in acceptance for proximally close (<2 km) and proximally distant (2–10 km) residents

**Proximally close (n=144)**

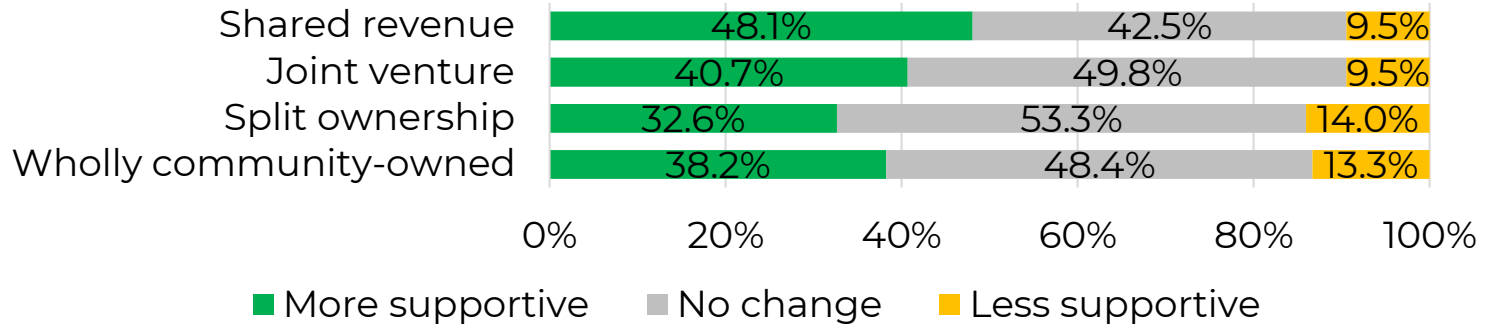


**Proximally distant (n=682)**

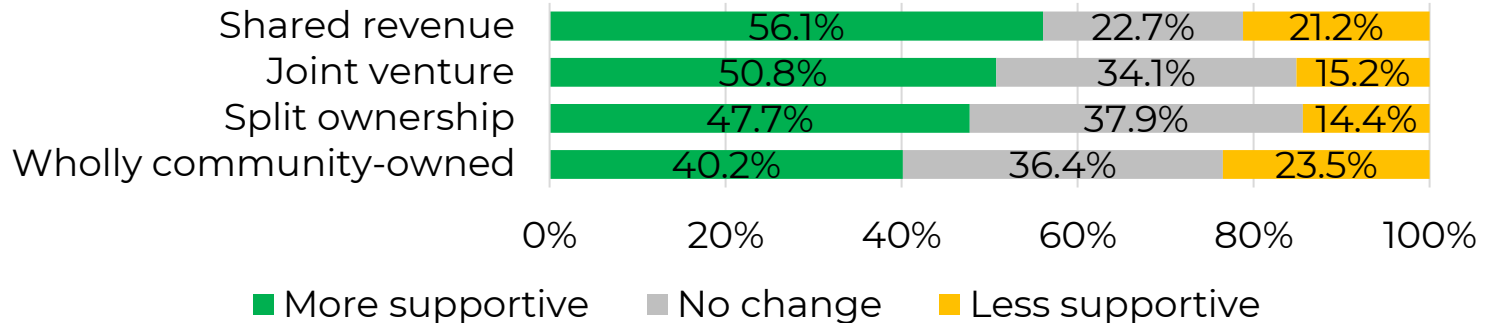


# Change in acceptance across project development stages

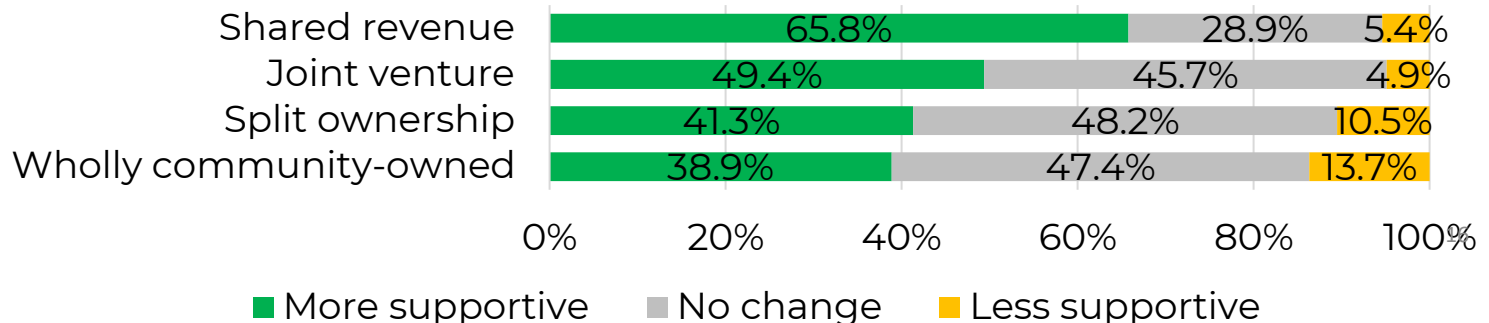
**Planning/  
pre-planning  
stage  
(n=285)**



**Construction  
stage  
(n=132)**



**Operation  
stage  
(n=409)**

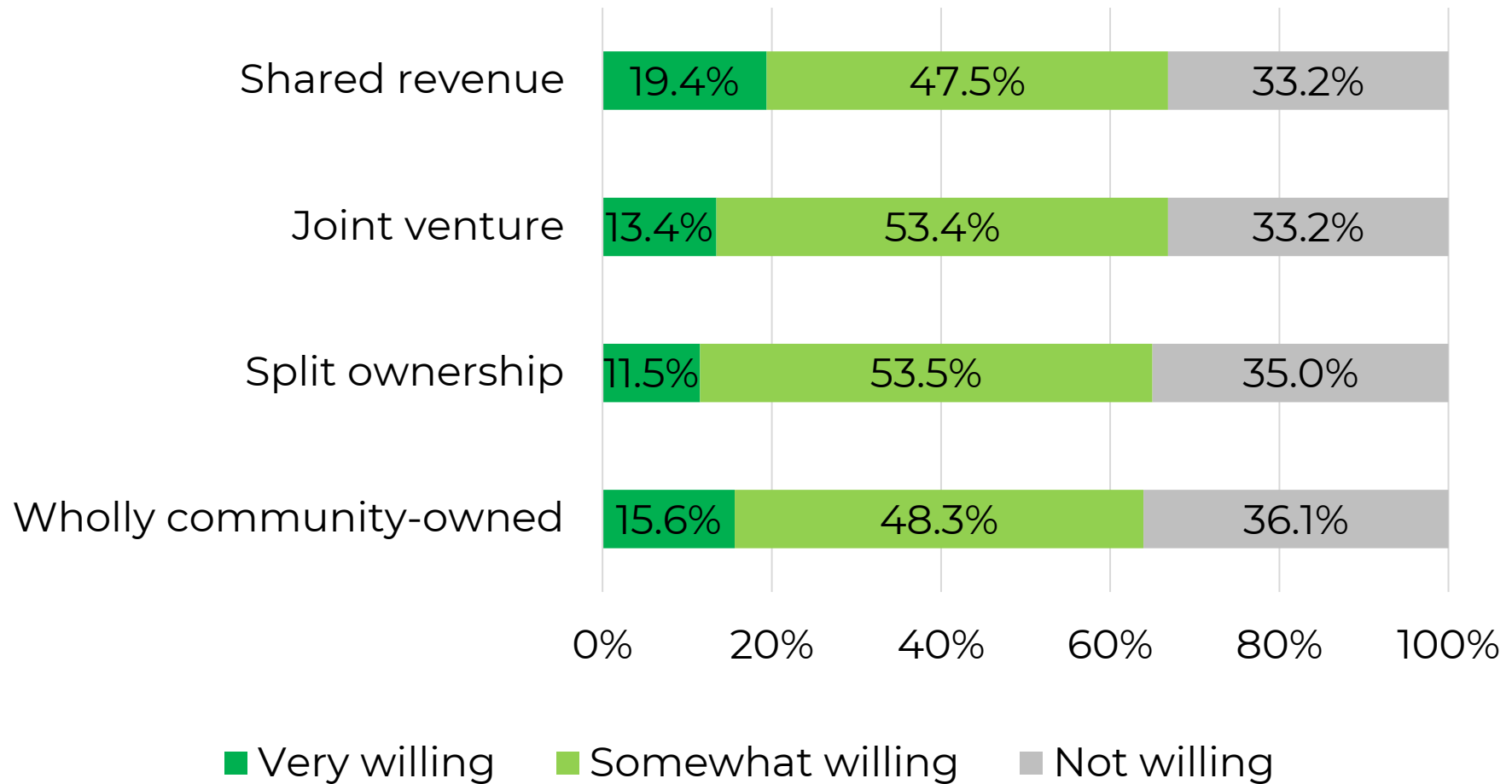




# Willingness to volunteer and invest

- Willingness to **volunteer**
  - Residents' willingness to volunteer their time to help establish and manage their local wind farm was assessed under each of the community ownership/co-ownership arrangements.
  - Factors influencing volunteering decisions were examined.
- Willingness to **invest**
  - Residents' general willingness to invest in the local wind farm was assessed i.e. their willingness to invest if any type of investment opportunity was available.
  - Willingness to invest was also assessed by considering the investment attributes e.g. return and risk.

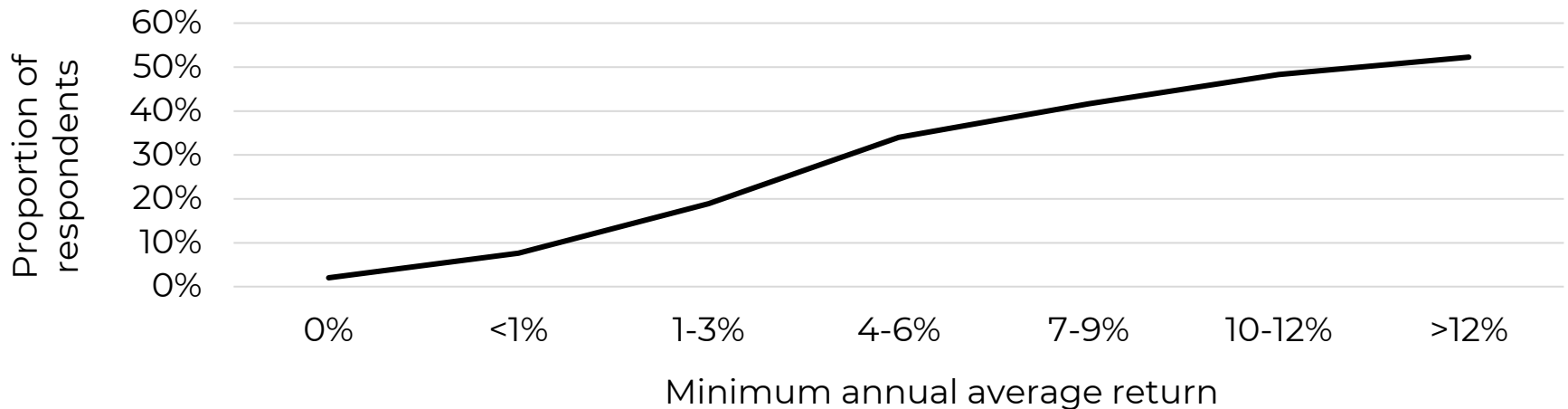
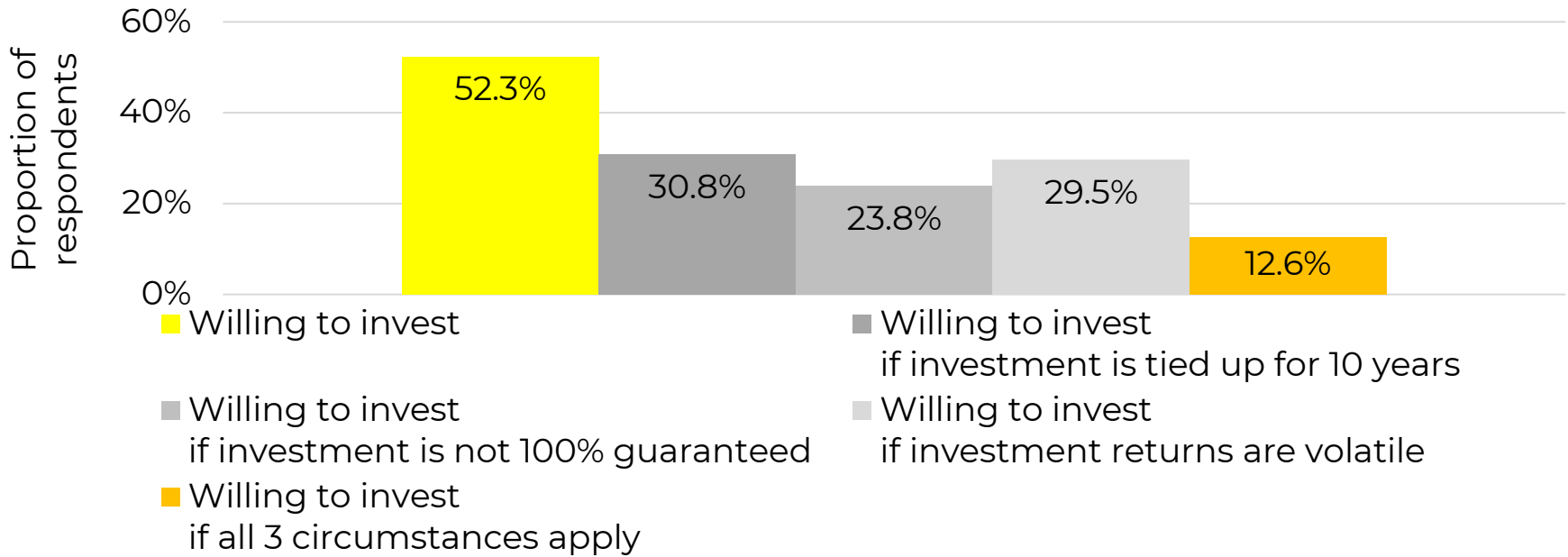
## Willingness to volunteer



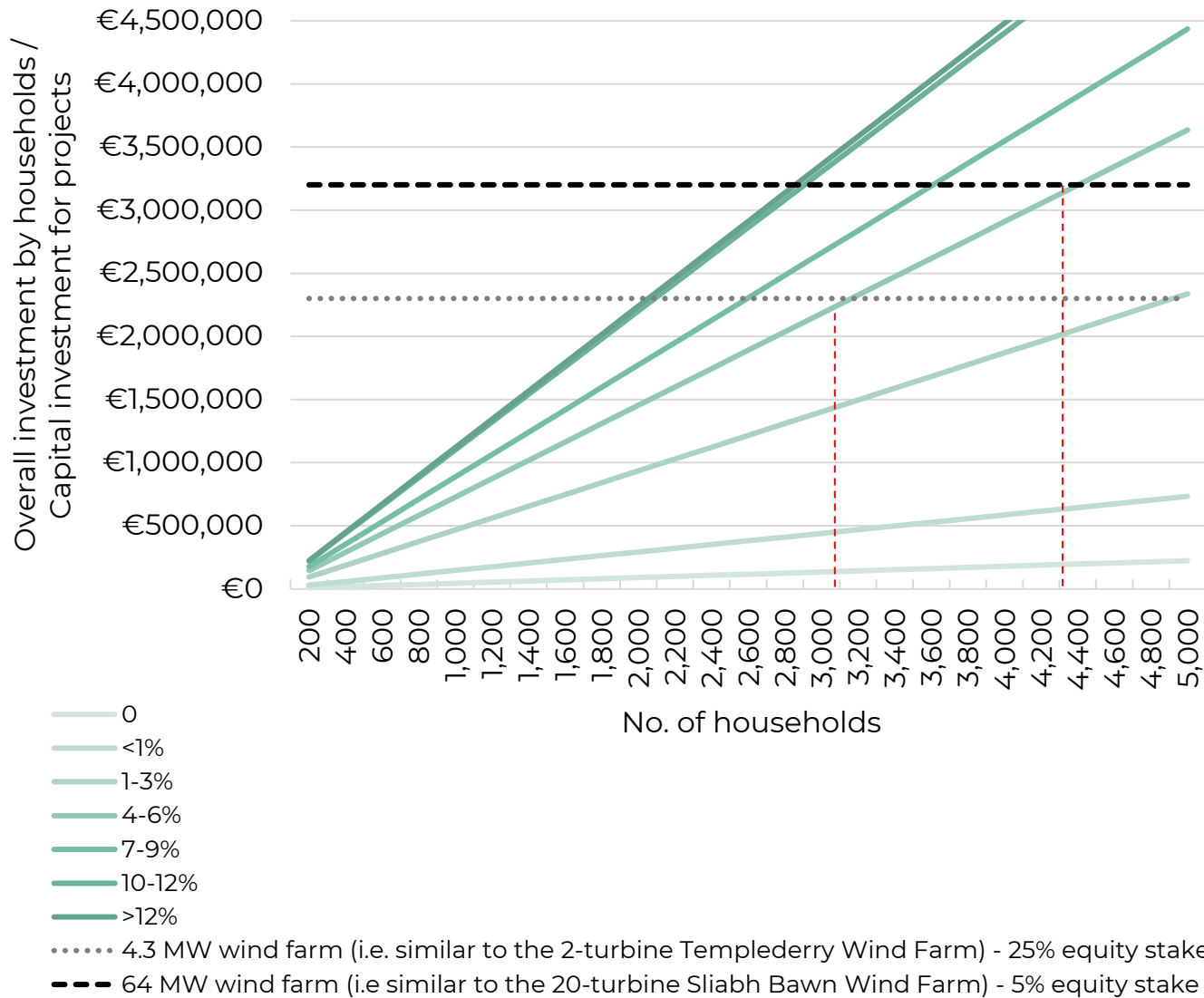
# Factors influencing volunteering decisions

Types of arrangements	Factors
<p><b>Deeper forms of ownership</b> i.e. wholly community-ownership, split ownership and joint ventures</p>	<p>- Knowledge about wind farm development</p>
<p><b>Co-ownership arrangements</b> i.e. split ownership, joint ventures and shared revenue</p>	<p>- Trust in the developer</p>
<p><b>Shallow form of co-ownership</b> i.e. shared revenue</p>	<p>- SEC in area</p>
<p><b>Wholly community-ownership</b></p>	<p>- Desire for design changes</p>
<p><b>Wholly community-ownership and split ownership</b></p>	<p>- Stage of development</p>
<p><b>All types of arrangements</b> i.e. wholly community-ownership, split ownership, joint ventures and shared revenue</p>	<p>- Age</p>

# Willingness to invest



# Projected levels of community investment in a planned wind farm



## Assumptions

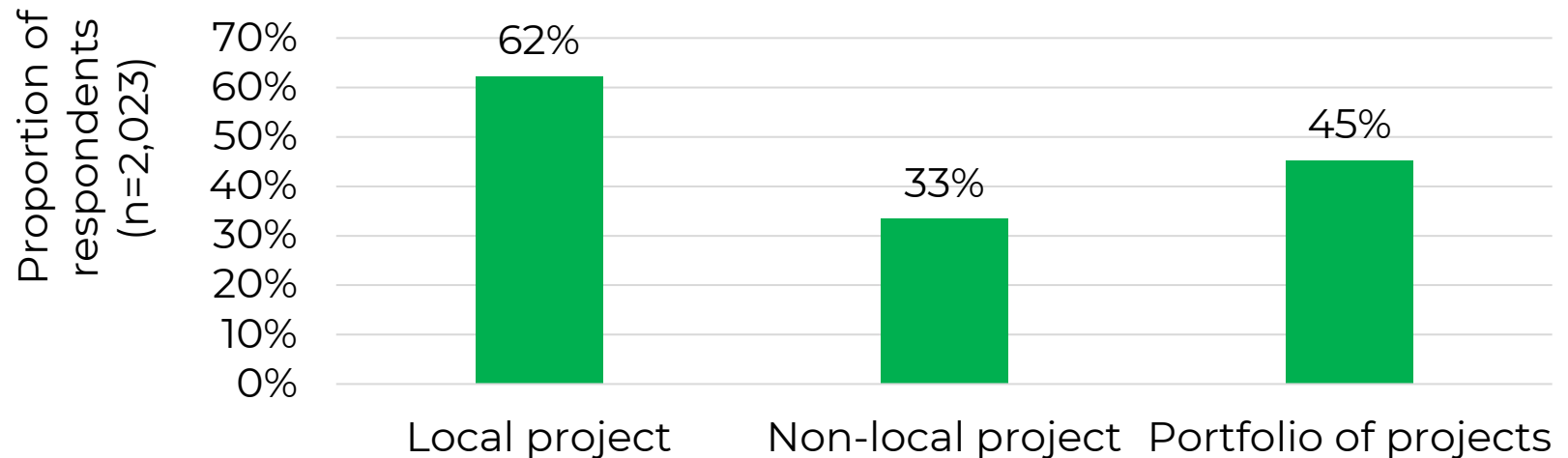
- 1) Investment is **not risky**.
- 2) Overall capital investment is based on the average amount that citizens would invest at each return level.
- 3) A debt/equity ratio of 75% debt and 25% equity would finance a wholly community-owned project.
- 4) Capital investment costs are €2 million per MW.

# Potential for raising equity finance from non-locals

## National Survey

*If you were provided with the opportunity to invest in the following projects over a 5-year time horizon at an approximate return between 2% and 6% per annum, which of the following projects you would consider investing in?*

- (1) A local wind energy project*
- (2) A non-local wind energy project*
- (3) A portfolio of wind energy projects*



# Factors affecting investment decisions

Types of projects	Factors affecting investment decisions
All project types	- Financial investment experience
Local project	- SEC in area
Non-local project	- Regional location
Portfolio of projects	- Familiarity with wind energy investments

# Developer interviews: Summary of findings

- **Mixed opinions** on the potential benefits of co-ownership for developers.
- Preference for the **shared revenue arrangement**.
- Perceived **financial challenges** for communities in establishing co-owned projects.
- Perceived **lack of skills** within communities for developing co-owned projects.



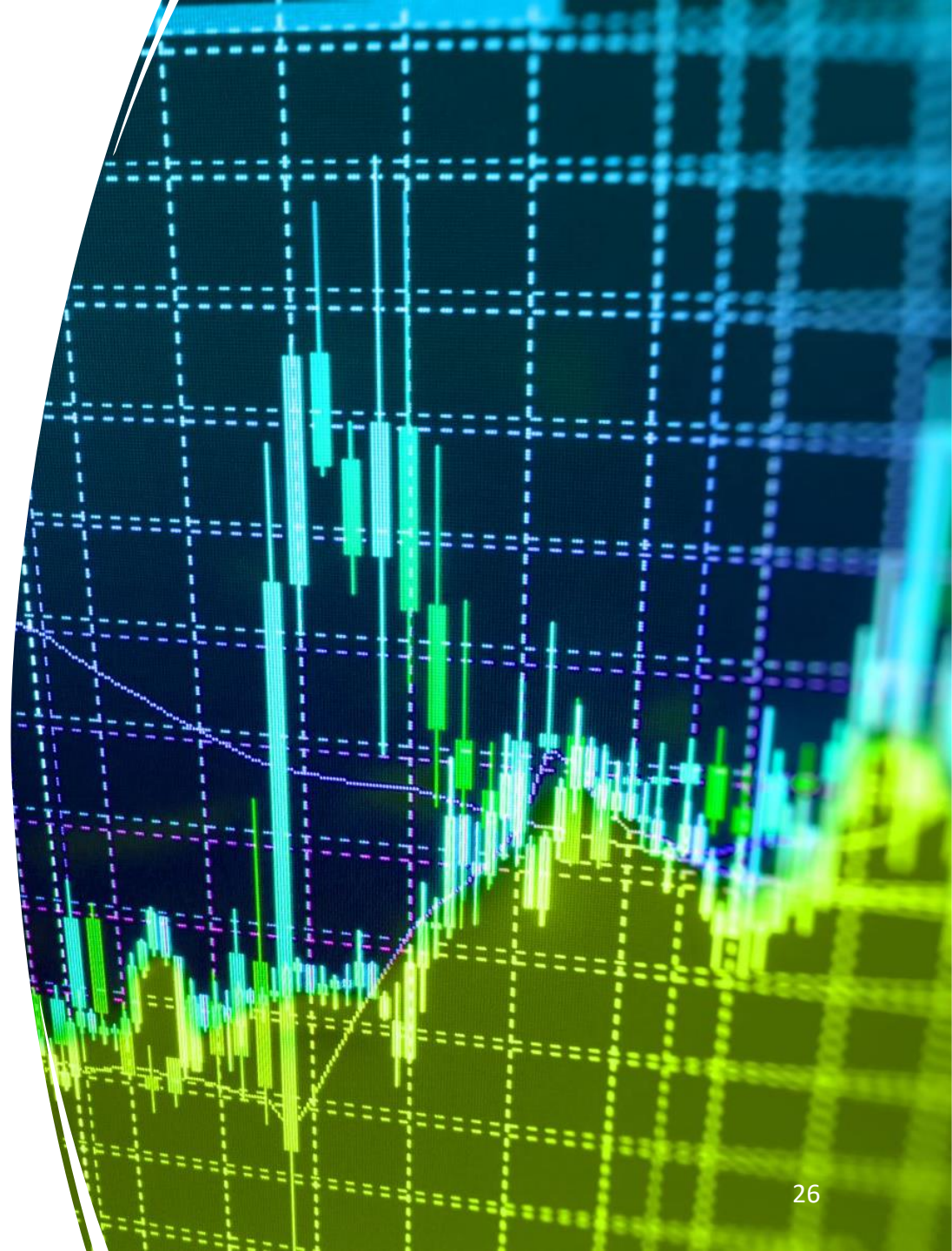
# Key Learnings

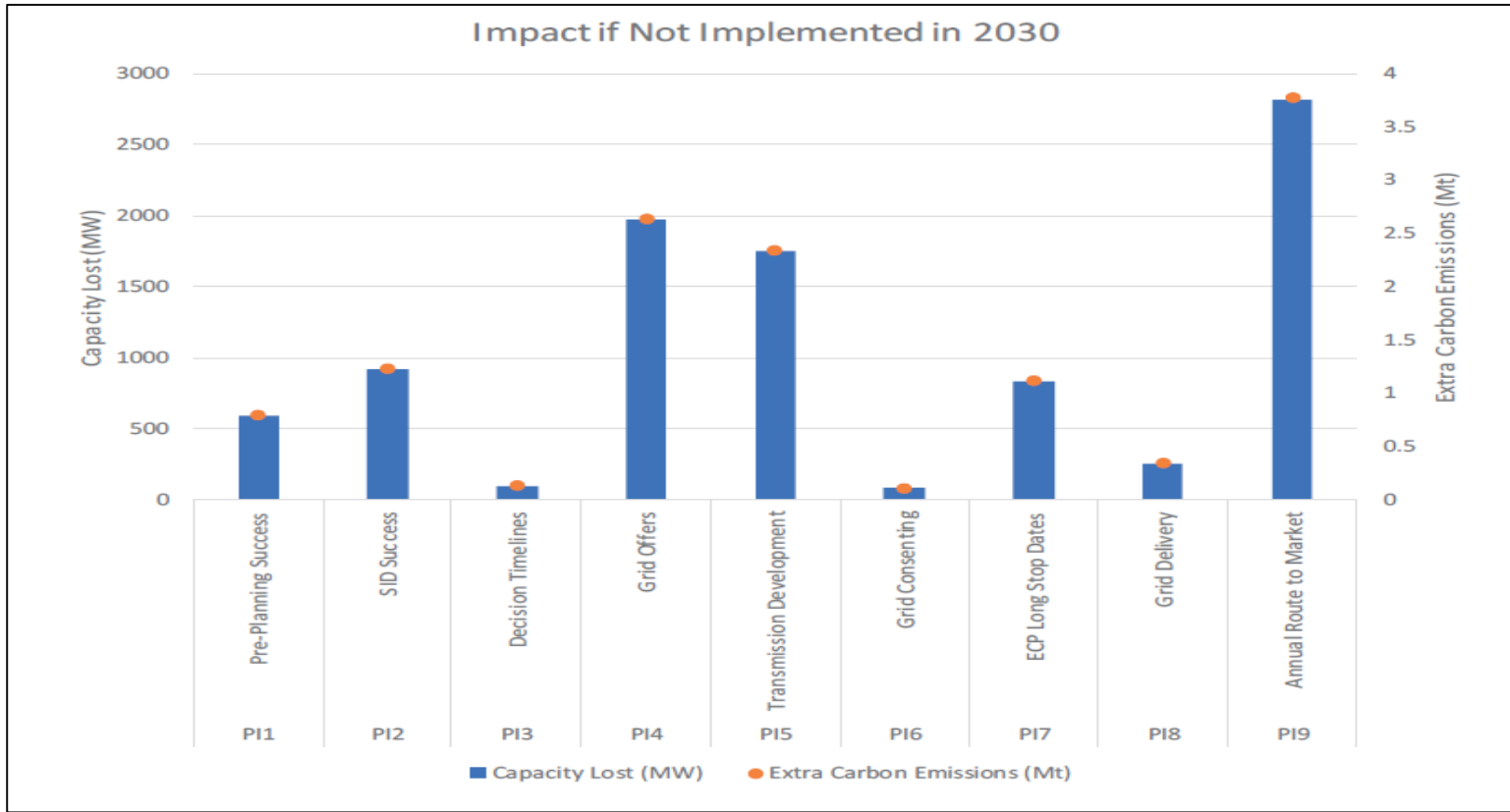
- The idea of community ownership/co-ownership generally has a **positive impact** on local residents' acceptance of wind farms.
- However, such arrangements are **not a silver bullet** for improving acceptance of planned projects among people who are opposed or those who would live in close proximity.
- **Shared revenue arrangements** are generally preferred by citizens.
- **Capacity building programmes** to educate and advise communities on how to develop wind farms would help to encourage citizen participation in community owned/co-owned projects.
- Initiatives aimed at **building trust** between communities and developers would help to encourage citizen participation in co-ownership arrangements.
- Continuing to **develop the SEC network** would also help to encourage citizen participation in co-ownership arrangements.

# Hurdles

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- Financial
- Regulatory
- Grid Access/Connection costs
- SLO
- Planning
- Skills
- Momentum – SECs to RECs
- Distributional justice





Building Onshore Wind 70 by 30 Implementation Plan, IWEA 2020

## Community ownership and citizen participation: What might work?

# Thank You

Further Questions  
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*23<sup>rd</sup> November 2023*

