



# Citizens' Participation

## The Key to Barbados' Sustainable Energy Future

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# Structure of the presentation

1. Why is citizens' participation necessary?
2. What will the future energy system look like?
3. What will the power cost?
4. Citizens' participation in at least two dimensions
  1. Acceptance
  2. Ownership
5. Why are these dimensions so important?
6. How can we secure citizens' participation in both dimensions?

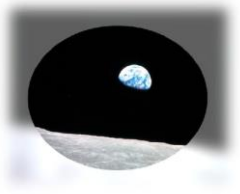


# Why is citizens' participation necessary?



# Reasons for citizens' participation

1. Renewables have low power density
2. Power production will move close to every citizen
3. With a lack of acceptance or with outright resistance, it will be very difficult to deploy the necessary RE capacities
4. Citizens need to be convinced that renewables are a good choice and necessary for climate protection
5. Experiences around the world show that participation and understanding is key to the necessary acceptance



# 100% RE power is feasible

# 100% Renewable Power Supply for Barbados

Load is met every hour of the year!

195 MW PV



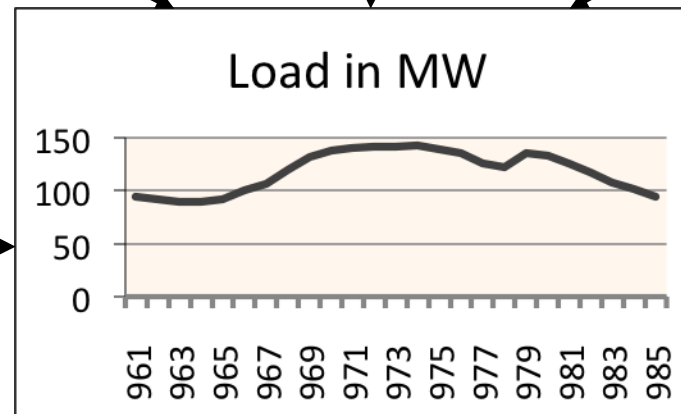
1 GWh PSH



200 MW wind



25 GWh biomass

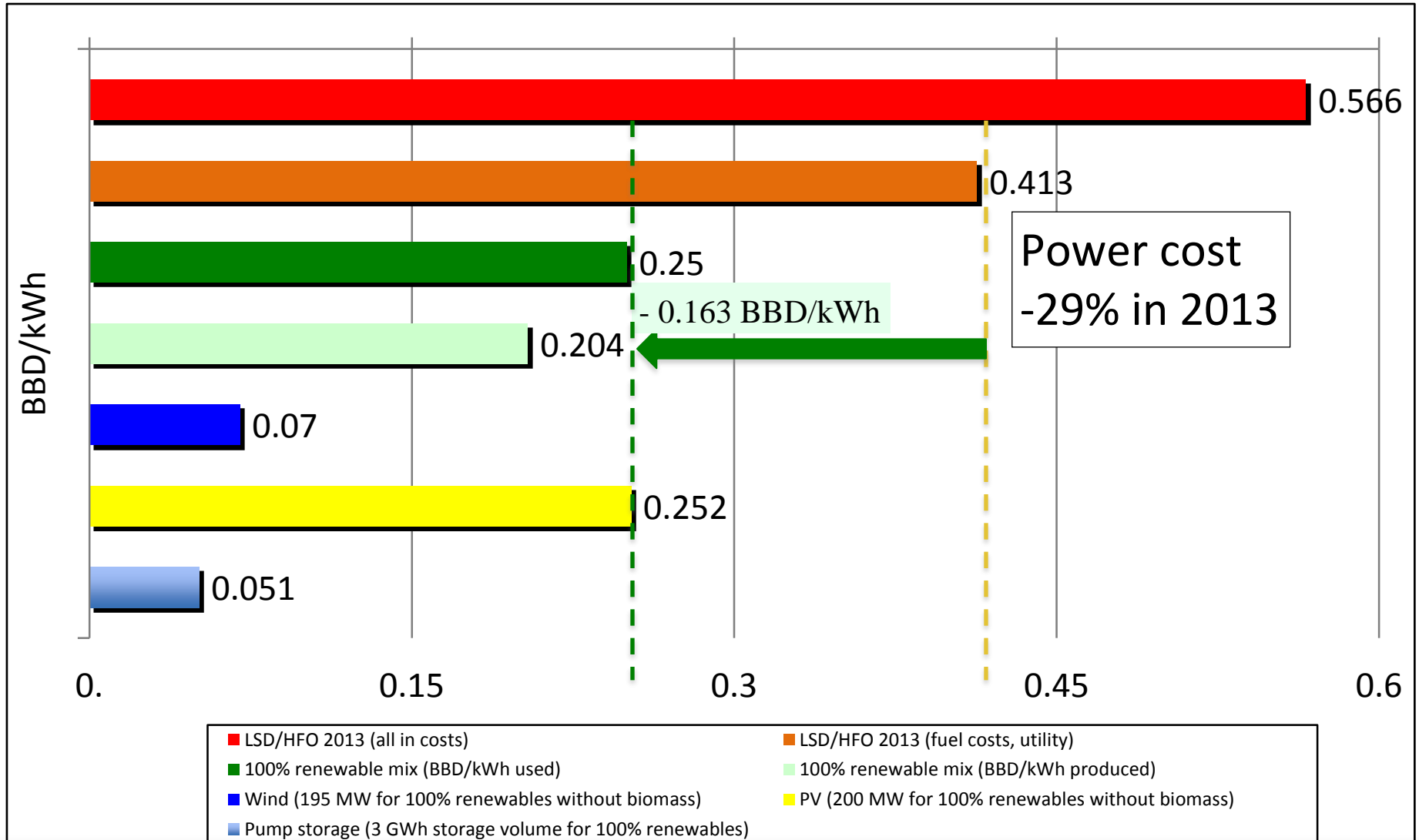




# 100% RE power is affordable



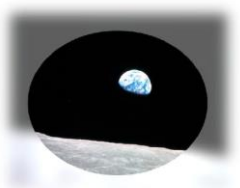
# Cost of 100% RE Power for Barbados 2013





# Main impacts of 100% RE Power for Barbados 2013

- **A 100% renewable power supply for Barbados is no problem**
- **Electricity bill lowered by 175 Million BBD/a**
- **Diesel import savings of about 375 Million BBD/a**
- **Net import reduction per year - 300 Million BBD/a**
- **Net tax increase per year + 104 Million BBD/a**



# Two main dimensions of citizens' participation



# Two dimensions of participation

## 1. Information and participation in decision making

- Most common form of participation
- Early information about RE expansion plans
- Participation in decision making process about location
- Modification of plans according to reasoned intervention
- Lowest negative impact of a development

## 2. Participation through ownership

- Citizens' or community wind farms
- Direct shares in wind or solar farm
- Indirect participation through credit unions



# Why are these dimensions so important?



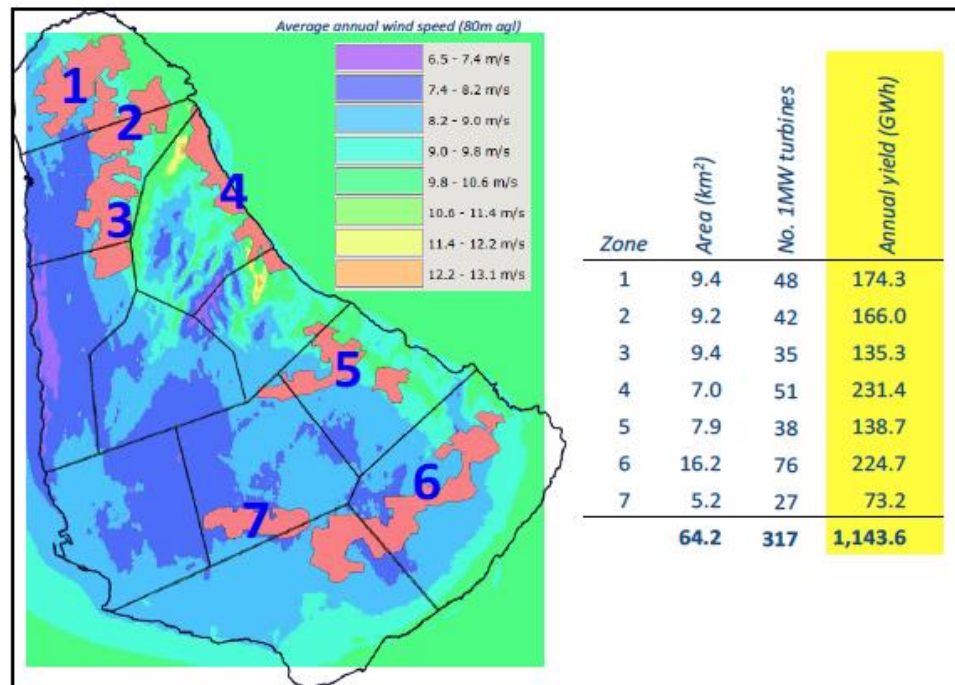
## Why are the two dimensions of participation so important?

Wind will move closer to many homes and be quite visible.

German experience shows that if people are part to the decision making about the siting they are far more likely to accept the final locations.

Preferable wind sites in Barbados

- 64 km<sup>2</sup> out of
- 4 km<sup>2</sup> total land area of Barbados



Source map and calculations: Rogers 2015

## Why are the two dimensions of participation so important?

The visual impression of different turbine sizes (here 1 MW and 3 MW turbines) matters to people. Experience shows that people participating in decision making accept the final far installation better.



Source of animation: Rogers 2015





## Why are the two dimensions of participation so important?



People owning part of a wind park look at their investment. They like to see the rotors spin.

People without any share in the wind park often feel disturbed by the views.

Far higher acceptance in regions with high shares of community wind parks.



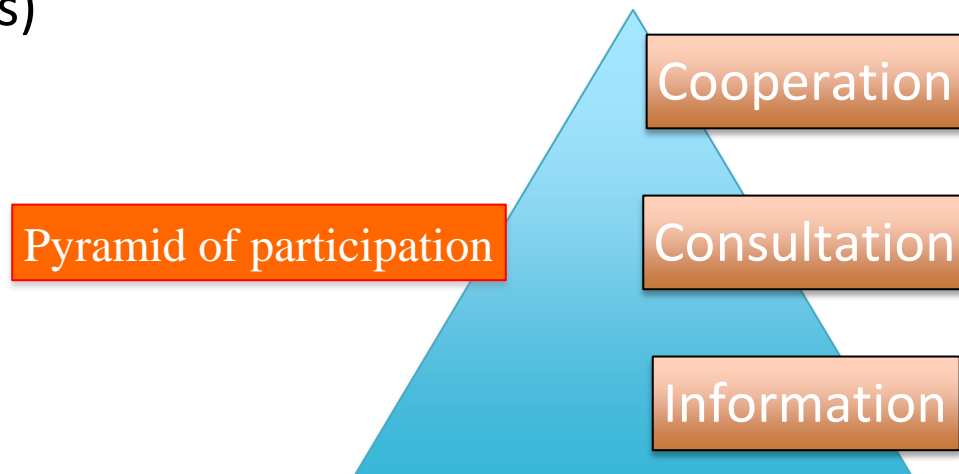
# How can we secure participation?



# Successful participation 1

## Information and participation in decision making

- Early information about RE expansion plans
- Participation in decision making process about location
- Modification of plans according to reasoned intervention
- (Ownership of REs)

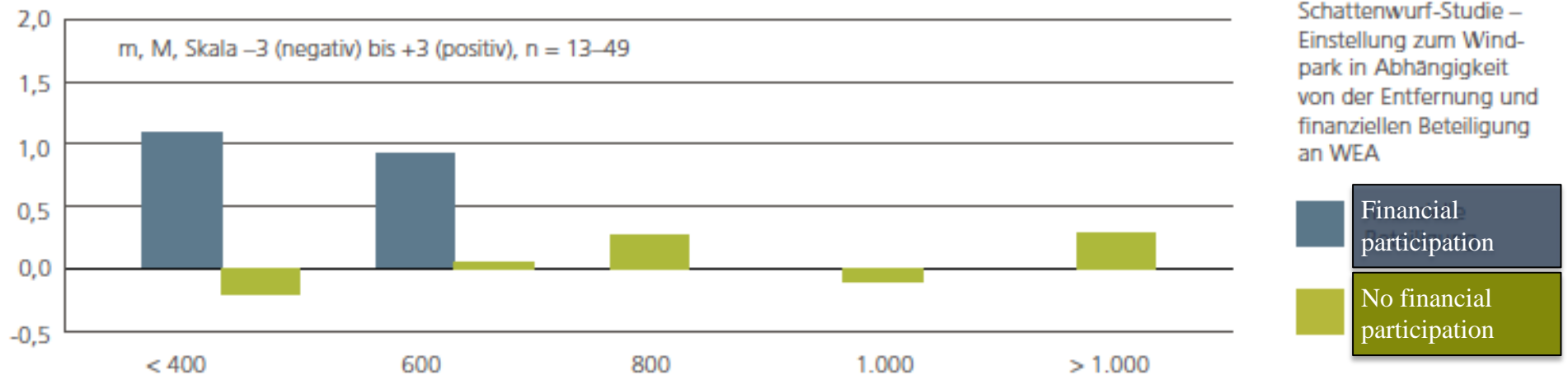


Source: Energieagentur NRW 2015, 5

# Successful participation 2

## Participation through ownership

Peoples' attitude towards wind turbines close to their home  
Distance in meter (scale -3 (negative) to +3 (positive))



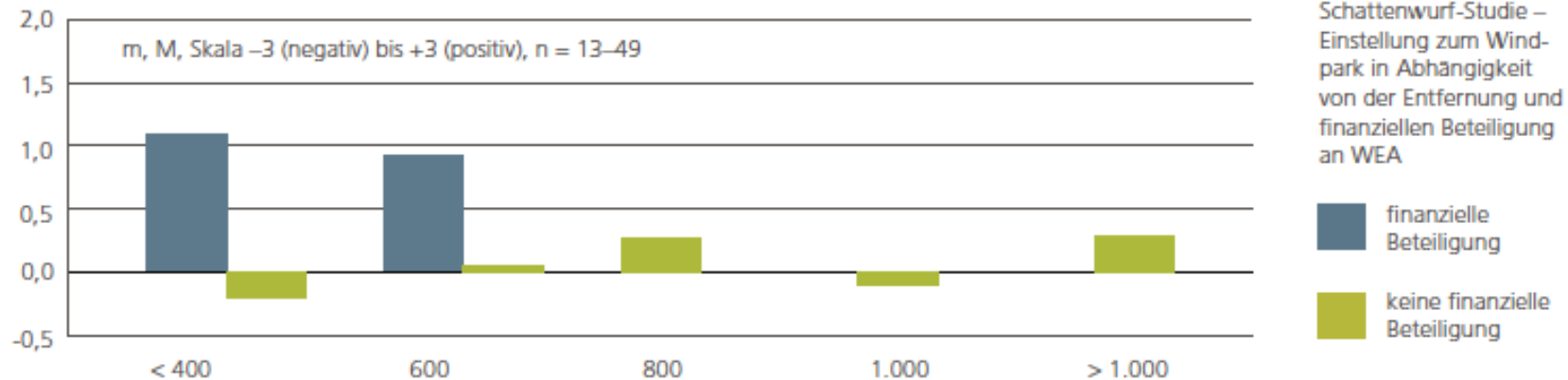
Source: Fachagentur Windenergie an Land, 2015, p. 11

## Successful participation 2

### Participation through ownership

- Citizens' wind farms
- Direct shares in wind or solar farm
- Indirect participation through credit unions

Abb. 3: Schattenwurf-Studie Einstellung zum lokalen Windpark nach Entfernung





*The success of renewables needs acceptance*

*Citizens' participation is the key to acceptance*

*So, no 100% RE future without the highest possible level of participation!*