Federal Ministry
for Economic Affairs
and Energy

The role of communities in the German Energy Transition

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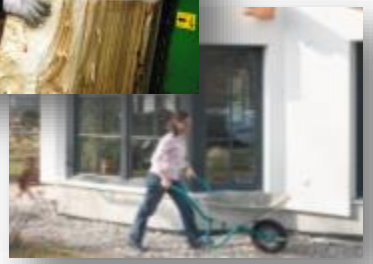
The role of communities in the German Energy Transition

- *What is Community-based renewable energy (Cb-RE)?*
- *Is it important?*
- *How are communities involved?* Levels of involvement in…
    - (1) …decision-making
    - (2) ...the different project stages
    - (3) ….regarding benefit reaping
- *Who are the beneficiaries?*
- 3 examples of different participation models
- *How are they making money?* Business models of RE-projects: Feed-in-tariff, off-grid and self-consumption, net metering
- *Why does it work?* Frameworks conditions
- *What about here?* The audience: Transferability to Thailand?

Energy in the hands of the people

= prosumer



picture sources: Rieseberg, KfW-Bildarchiv / Thomas Klewar

What is Community-based renewable energy?

Community-based renewable energy covers energy related business models carried out by non-institutional, local actors.

such as…

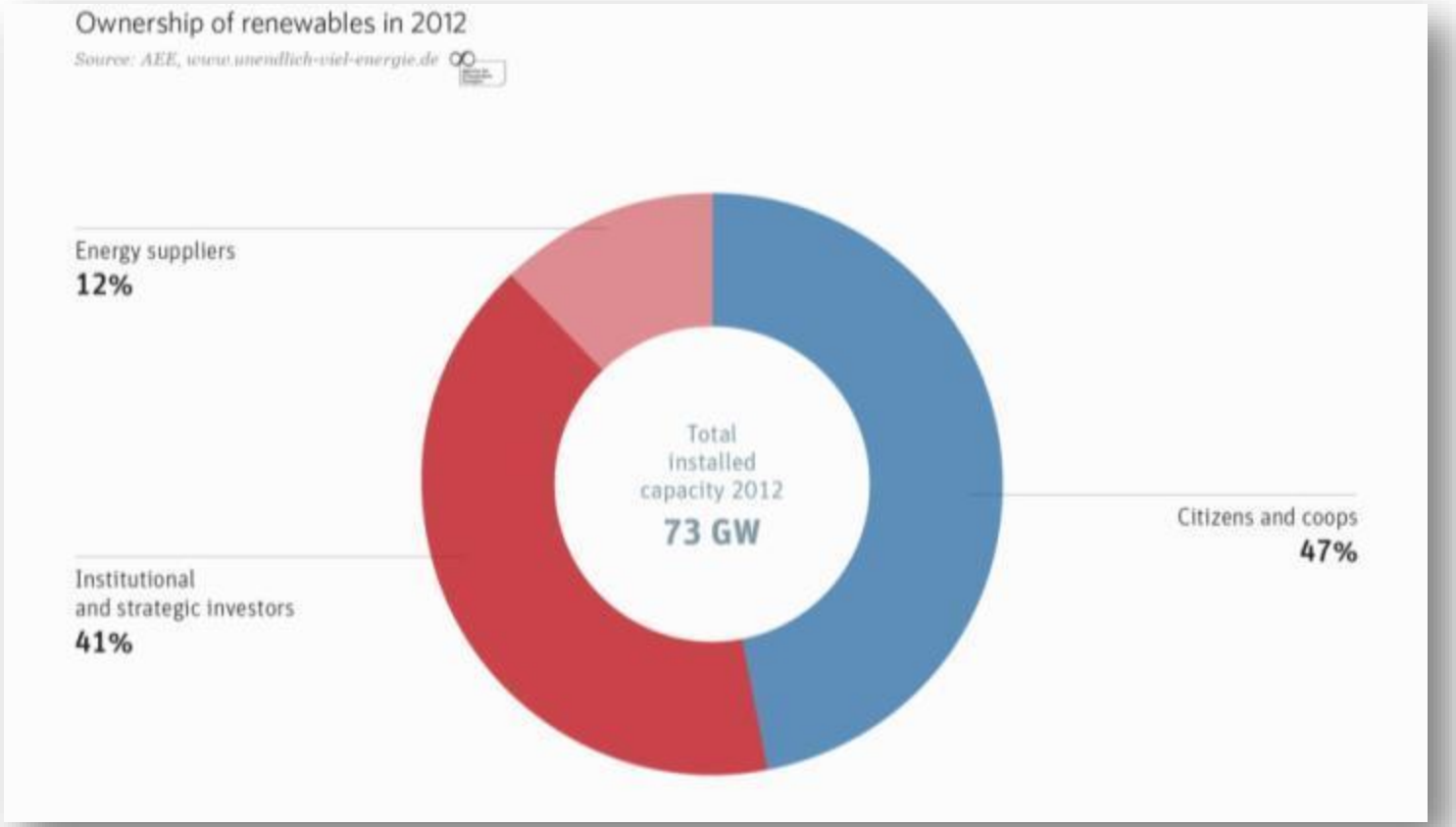
- individual citizens,
- small businesses,
- small-scale farmers,
- cooperatives,
- citizens companies.

picture source: EWS-Schönau

Community-based renewable energy - is it important?

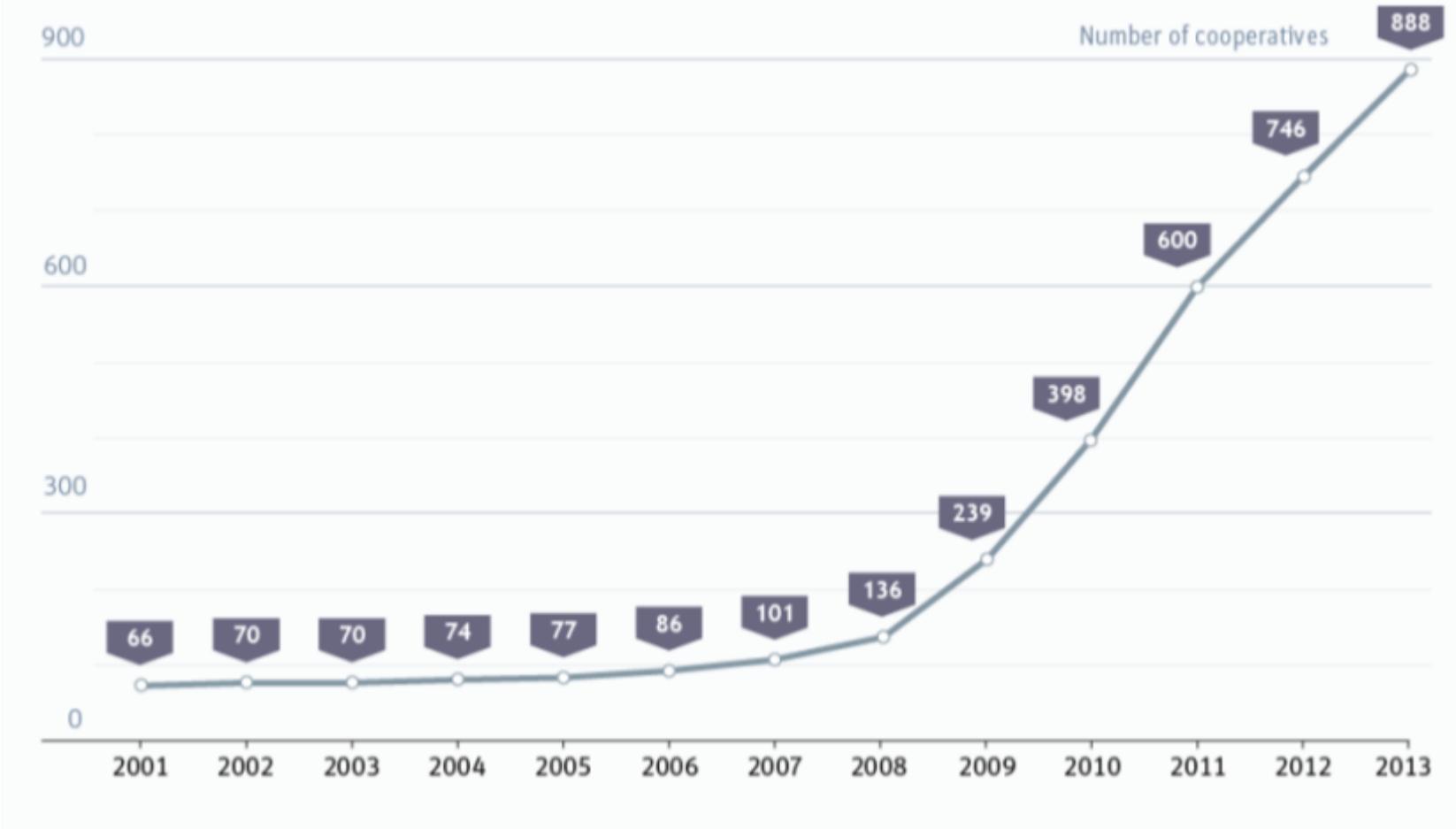
picture source: KfW Bildarchiv

How important is Community-based renewable energy?



Source: energytransition.de

Revival of energy cooperatives



source: www.unendlich-viel-energie.de

How are communities involved?

Levels of involvement…

- in **decision making** of energy related businesses

How?

- during **project stages** such as design, planning, construction and operation

When?

- reaping of **benefits** from a project

What?
How much?

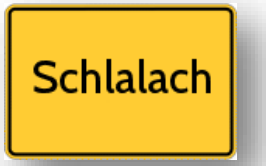
Decision-making in Community-based renewable energy – a few examples

involvement

community based

- Local farmer owns & operates a wood chip heating

- Citizen cooperative owns & operates a PV-plant



- Community & a company: Local Citizen buy, owns & operate parts of a set-up project

- Pure financing: any citizens buys profit participation rights in a project planner's wind farm

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Different degrees in different project stages

When?

Project Stages
Legal set-up
Business model
Plant planning
Decision „Co-benefits?“
Construction
Operation
Risks/ return on investment
Wider effects on the community

Benefits of community-based renewable energy

Environmental benefits

- Global climate, environment, biodiversity

Public benefits

- Acceptance of energy projects

Social Capital

- Self-efficacy & transfer of social participation to other fields
- Competences dealing with public administration
- Acquiring of new skills
- Community spirit

What?
How much?

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Benefits of community-based renewable energy

Financial Benefits:

- Return on investment
- Reduction of climate mitigation costs
- Land rental income opportunity
- Creation of jobs and markets
- Lower prices for electricity, hot water or heat
- Tax revenue for the municipality

Social benefits:

- Social spending through increased public income
- Contractually agreed contributions by investors, e.g. decontamination of landfills
- Foundations that support local community activity

picture source: KfW Bildarchiv

Beneficiaries of Community-based renewable energy

Environmental benefits

Financial benefits

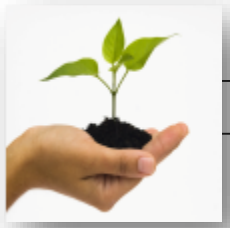
Social benefits

Public benefits

Social capital

Who in the community benefits?

Beneficiaries of Community-based renewable energy



Martket opportunities

- suppliers
- construction services
- service industry
- land owners
- biomass providers

Financial benefits

- public budget
- energy consumers
- investors

(Im)material values

- energy consumers *(secured supply)*
- community *(charitable foundations, spirit, self-/public image)*
- global community (environmental sustainability)

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Examples of community involvement

picture source: KfW Bildarchiv

Heidelberger Energy Cooperative

involvement

The project in Nußloch

- PV-residential roof-top 445,5 kWp, Net-investment: 525.000 Euro
- Business model: self-consumption/ electricity tariff for tenants

Decision making: 100% communal

Project stages: from the beginning

Benefits:

- 350.000 kWh “environmental benefit”
- Return on investment, low+fixed electricity tariff
- Planting of a new tree for every cooperative member

Beneficiaries

- 116 tenants and other cooperative members

picture source: www.heidelberger-energiegenossenschaften.de

A village & a company
Wind farm Schlalach

involvement

The Project

- A wind farm was supposed to be built

⇨ Citizens founded a working group
decided on a project company based on max. communal-benefit

Decision making: high community impact

Project stages: before the appointment of a project planning company

Benefits

- Option on 2 community owned turbines, one citizen foundation, local compensatory measures, equal land rent for all landowners

Beneficiaries

- 135 Land owners & non-land-owning citizens (option to join the citizen turbines/ citizen foundation)

picture source: Ostwind bringt neue Energie

Renewable energy financing by citizens

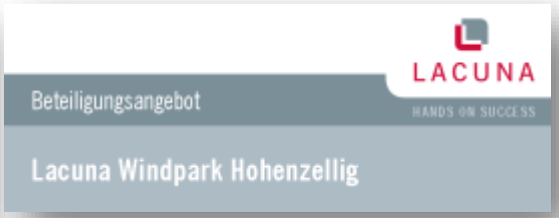
involvement

Outside of the Community-based renewable energy definition

Loans by citizens to the public utility

Saving bonds

Profit participation rights



Sources:, http://www.buergerkredit.de, www.umweltfondsvergleich.de, www.gls-bank.de

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How do they make money?

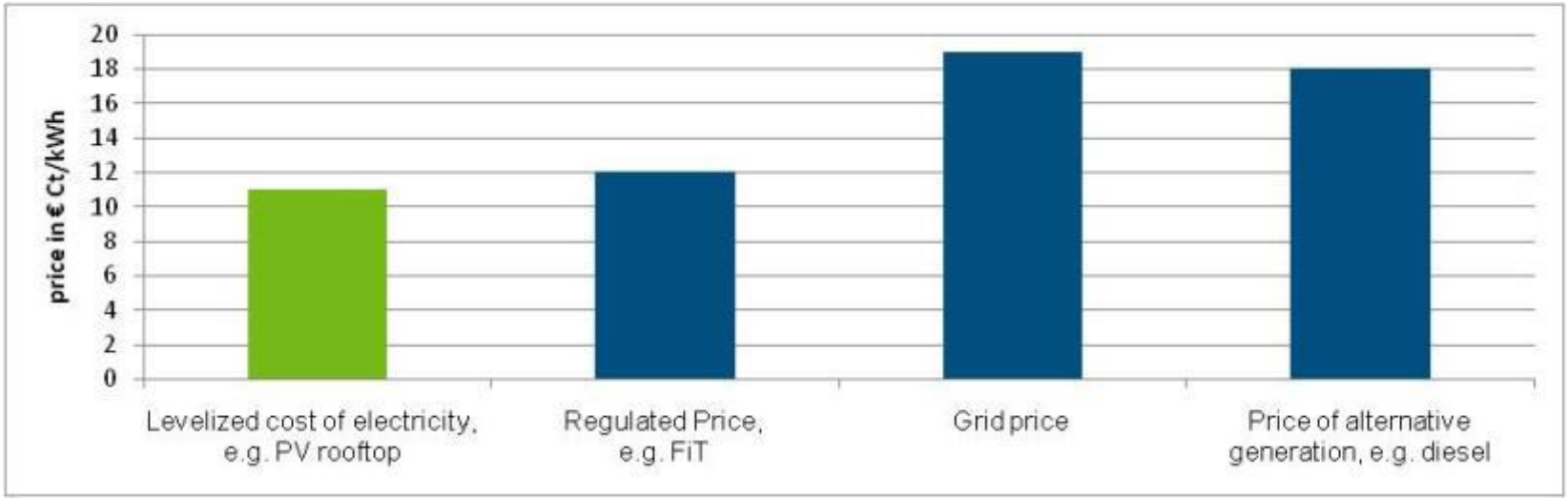
picture source: KfW Bildarchiv

Drivers of business models for RE-projects

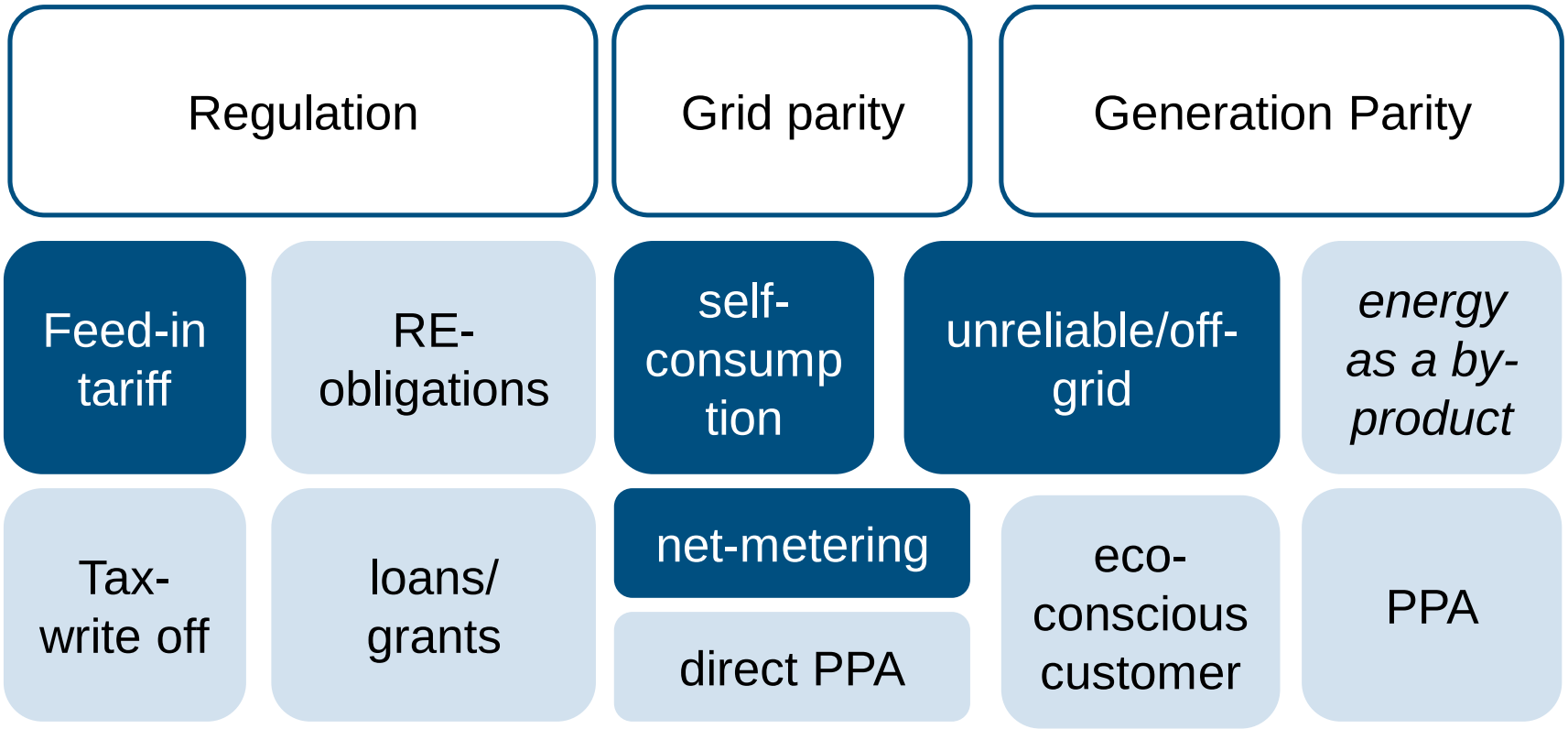
Regulation

Grid parity

Generation Parity



Elements of business models for RE-projects



Elements of business models for RE-projects

Regulation

Grid parity

Generation Parity

Feed-in tariff

RE-obligations

self-consumption

unreliable/off-grid

energy as a by-product

Tax-write off

loans/ grants

net-metering

direct PPA

eco-conscious customer

PPA

Business model driver: regulated power purchasing agreements/ feed in tariff

Regulation

Feed-in tariff

The model:

- 100% FiT in Germany with 20 years of feed-in and price guarantees with **easy and quick grid connection**

Benefits:

–Return on investment

Risks to investors: *low risk*

-Reliability of the policy/ legal framework

Note: 100% FiTs delivers high security + simplicity; the heart of the German community based energy

Business model driver: self-consumption

Grid parity

Alternative cost of electricity

The model:

- tariff to tenants mixing grid electricity and PV-self-consumption
- FiT - fall back option preventing complete loss

Benefits:

- return on investment + low energy prices

Risks to investors: *low-medium risks*

- decreasing grid electricity prices, insolvency of consumer(s), reduction of number of tenants or consumption

picture source: www.heidelberger-energiegenossenschaften.de

Communal virtual net metering

Grid parity

net-metering

The Model:

-Clean Energy Collective Colorado: communal PV-plants; virtual net metering: multiple homeowners share the output from a single facility not physically connected to their property

Benefits:

- Participants (among them renters) receive a reduction on their utility bill

Risks to investors: *low-medium risks*

- decreasing grid electricity price

picture source: http://easycleanenergy.com/

Why does it work?

Frameworks conditions for Community-based renewable energy

picture source: KfW Bildarchiv

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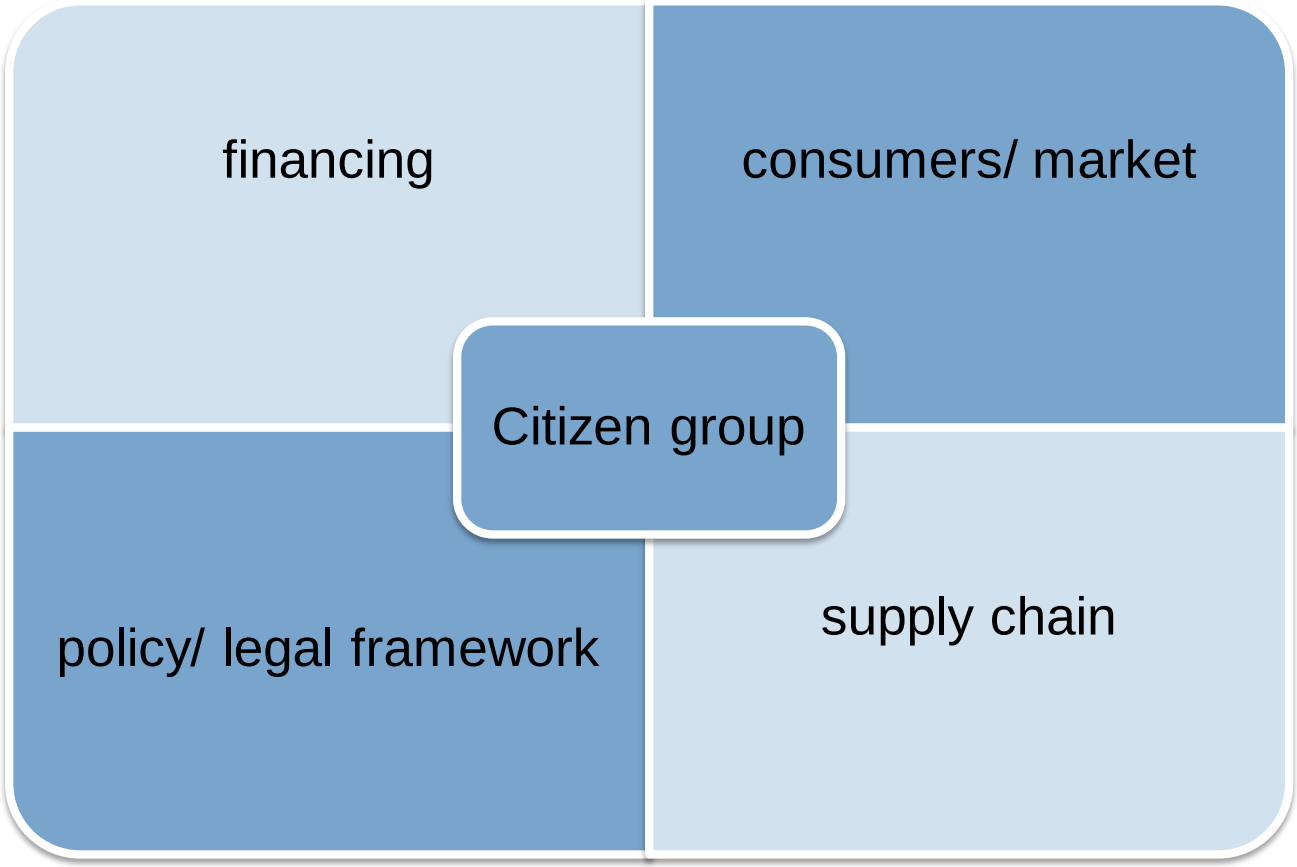
Which framework needs to be in place for Community-based renewable energy?



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Framework conditions for Community-based renewable energy

Financing

- Access to affordable financing

Consumers/ Market

- *policy: m*arket access/
- *policy:* access to the grid
- *policy: b*usiness model
- (- consumer interest)

Citizen Group

- Motivation & Interest
- Minimum expertise
- Trust in the business model

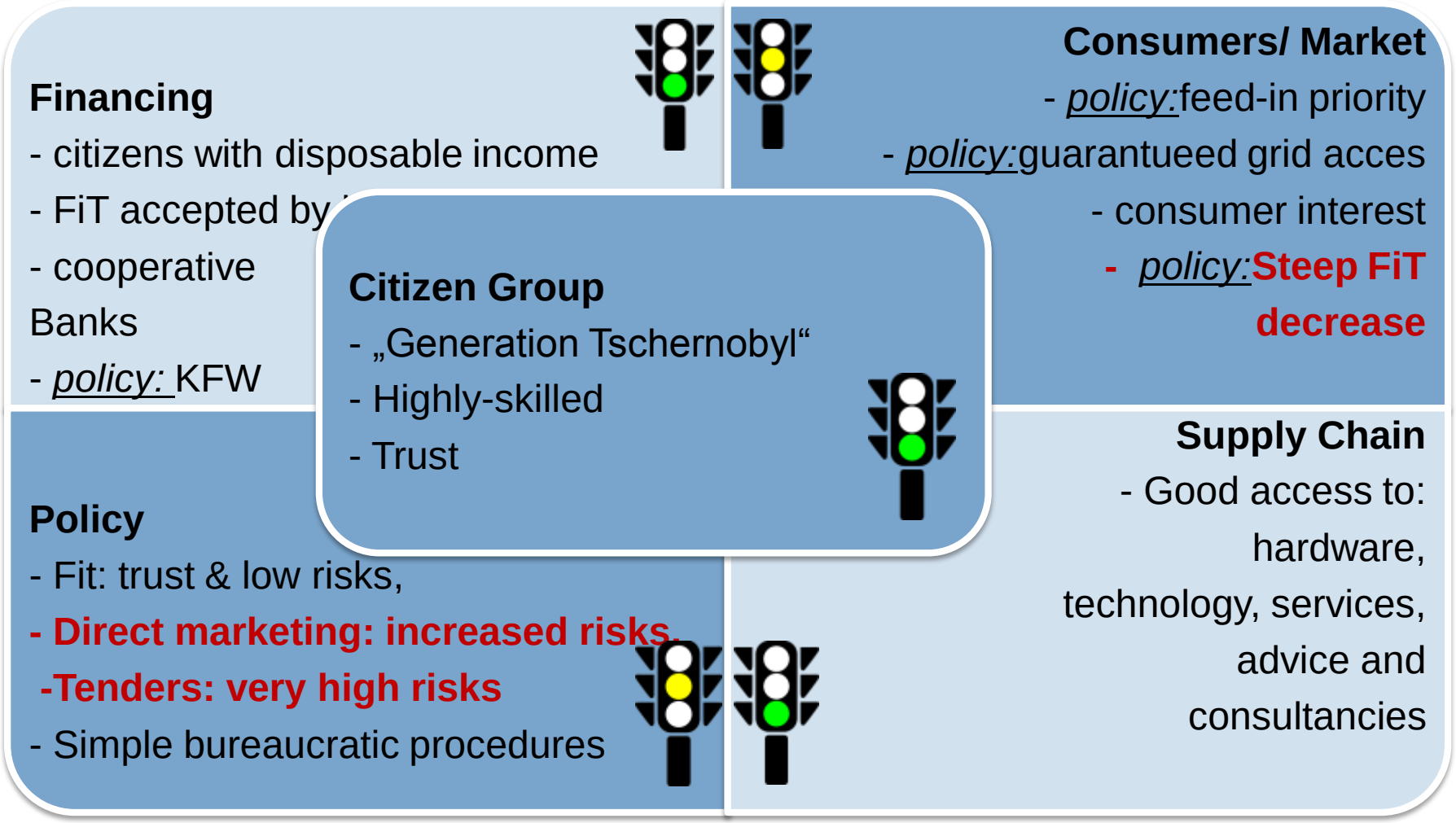
Policy/ Legal Framework

- Trust in the legal and policital system
- Low investment risks
- Simple bureaucratic procedures

Supply Chain

- Access to technology
- Access to services
- Access to advice and consultancies

Cb-RE Framework situation in Germany



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Findings

Success story:

- Community-based renewable energy makes up for >40% of installations in Germany
- Cb-RE consists of individuals and groups of citizens investing in RE
- Different degrees of involvement are possible from planning +owning +running to mere returns on bonds

Benefits:

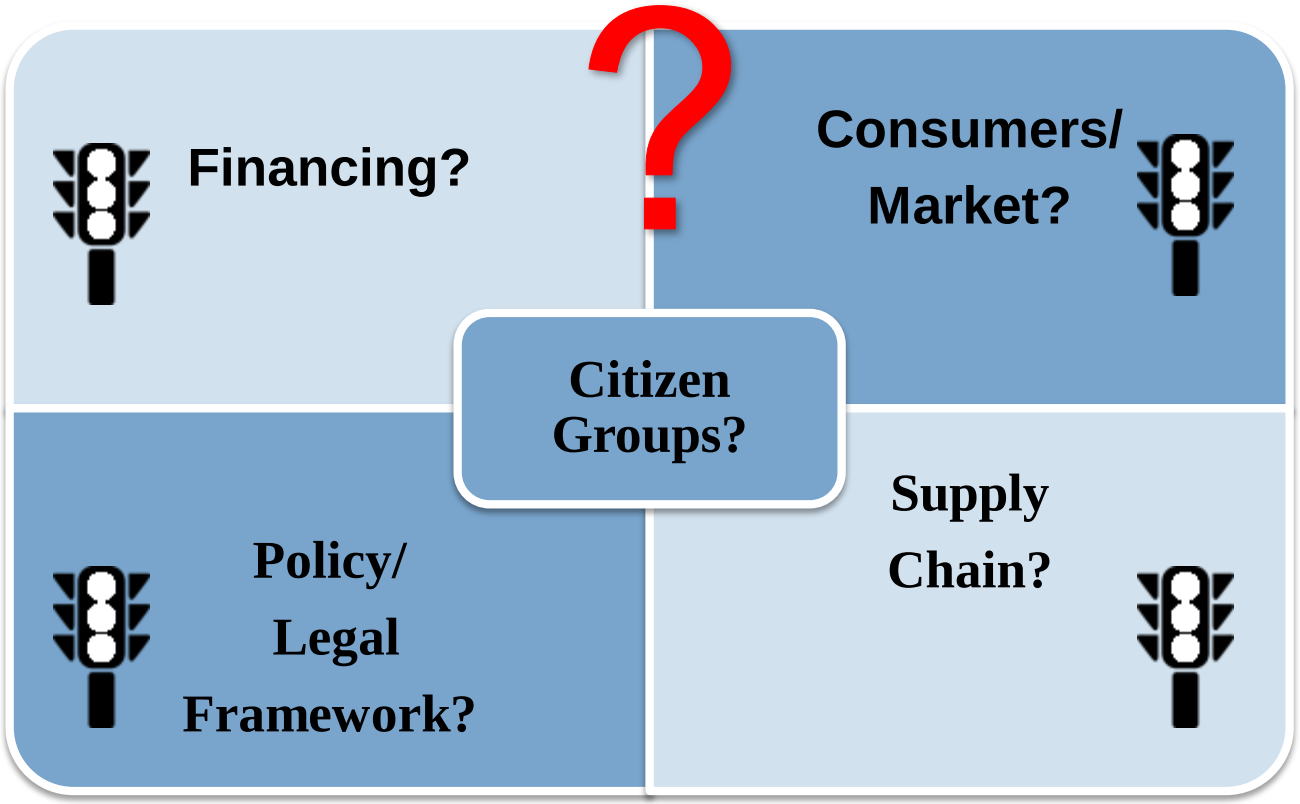
- Cb-RE benefits mostly citizens who are investors
- Cb-RE makes RE installations cheaper due to lower return expectations
- immaterial value such as acceptance and self-efficacy are very important results

Framework conditions:

- Cb-RE needs low-risk conditions, high-trust and simple procedures

Transferability to Thailand

Which framework conditions exist in Thailand?



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presented by

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