

Renewable energy auctions in Germany and the Netherlands

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Germany

Germany: Auctions in the EEG reform



Process overview

- **Technologies:** Auctions in wind onshore, wind offshore, biomass (design not final), PV above 1 MW
- **Pilot opening** of PV auction scheme to other EU MS



First results from ground-mounted PV pilot (started 2015)

- 400-600 MW p.a., so far 4 rounds
- Very high competition, strongly reduced prices (from 9.2 to 7.4 EURct/kWh)
- Project realization needs to be monitored (2 year realization deadline, so far realization remains realistic)



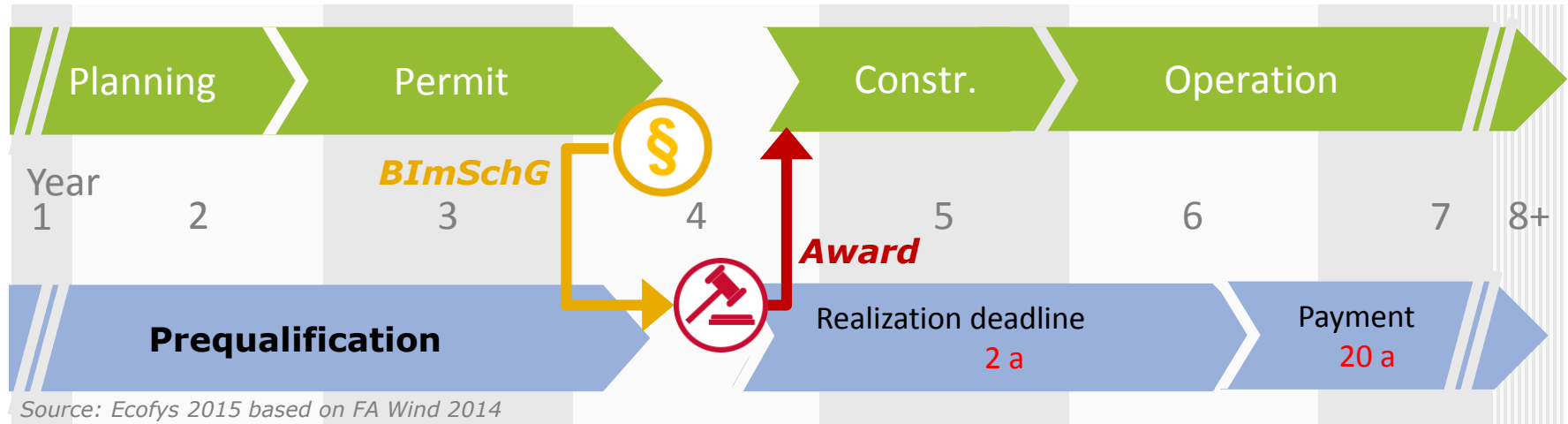
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Germany: Wind onshore auctions



- **Technology-specific** (separate auctions for PV and offshore wind)
- **Pay-as-bid** pricing rule, multiple-item static auction
- **Maximum price**
- **3-4 auction rounds per year**
- **30 EUR/kW bid bond, 2 years realization time**
- **Annual auction volume depends on built-up of other technologies** – at least 2.8 GW but including retrofitting (wind used as gap filler to achieve RES targets)

Wind Onshore - Effectiveness: auction late in planning process to ensure project realization



High material prequalification criterion to ensure high realization rate & target fulfillment: Permit notification under Immission Control Act (BImSchG)

Advantages

- + Few project risks after BImSchG
- + Credit-rating of bidder has smaller impact than on bid-bonds
- + Easier to monitor target fulfillment
- + Accepted by industry

Disadvantages

- High (sunk) costs for long and risky pre-development
- Could be prohibitive and reduce the level of competition

Efficiency important, but also regional distribution of plants

Reference yield model

- Bidders bid on reference site, but final tariff is determined with correction factor based on local wind conditions
 - **Reduce windfall profits** of projects with better wind conditions
 - Ensure (to a limited extent) that projects will be **regionally distributed** over Germany to limit transmission expansion needs and ensure steady wind production

Geographical wind zones

- Temporary partition of Germany into two wind zones according to transmission constraints (North-South)
- Build-up in Northern Germany capped to $\sim 1/3$ of auctioned capacity

Actor diversity is a political goal in Germany, right balance is complex

Importance of actor diversity in Germany

- Actor diversity is a political goal for the **acceptance of energy transition**.
- Effectiveness and efficiency: **avoiding market concentration** to ensure competition, easier pre-development of sites through local engagement

Difficulties for small actors in auctions

- Production costs are structurally different, but the result is comparable.
- Risk of not being successful and uncertainty on strike price problematic: **limited capacity to spread risks** in small project portfolio.

Principles in auction design

- Tackling actor diversity through simple and transparent auction design
- Preferential treatment for small actors should be limited (no impact on rest of auction design, avoid misuse)

Preferential treatment for citizen cooperatives

- In Germany preferential treatment **in** auction scheme (no exemption from auction as in other countries)
- **Pref. treatment only for citizen cooperatives¹**
- **Pref. treatment with lower mat. prequalification req.:** No BlmSch permit but proof of secured site, wind measurement. Split of bid bond²
- For other small actors new business models and cooperation may provide **alternatives for preferential treatments**, e.g.
 - Large and small project developers **cooperate** - large actors can spread risk better over portfolio. small actors have access to sites
 - Component manufacturers offer their **creditworthiness** for bid bonds to smaller actors as a new service
 - Project developers **sell pre-developed project earlier**, i.e. before the participation in the auction

1. Citizen cooperatives = at least 10 local natural persons with together 51% of voting rights, max 1 project per year.

2. Bid-bond: 15 EUR/kW when submitting bid, 15EUR/kW two years after receiving permit)

Lessons learnt so far

- Finding the right **balance** btw. policy goals such as **target fulfillment, competitive setting of support tariffs, and actor diversity** is complex
- High degree of **stakeholder involvement** from the beginning
- Constant **learning between actors**: during the debate, relative importance of certain issues shifted (e.g. role of prequalification requirements in comparison to pricing rule)
- **Pilot scheme** of ground-mounted PV helped prepare the Ministry, the auctioning authority and associations for functioning of the new scheme
- **Ongoing debate** on actor diversity, regional quotas, and how to set the auction volume

NETHERLANDS

The Netherlands – SDE+

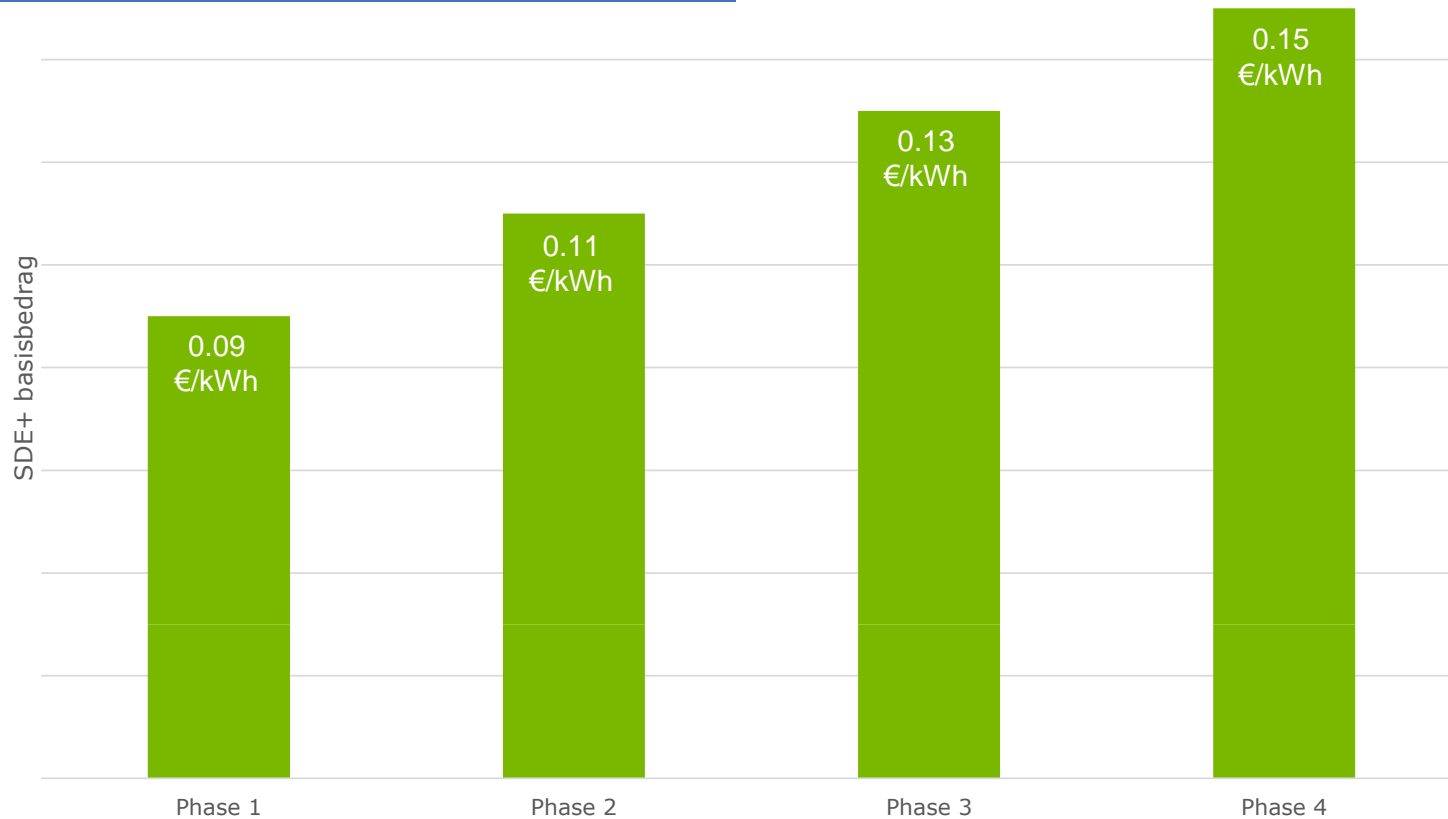
SDE+ in a nutshell:

- Sliding feed-in premium scheme introduced in 2011;
- Includes a large variety of technologies covering electricity, heat and gas;
- “Reverse-auction”
- SDE+ scheme is technology neutral aiming to deploy renewable energy at the lowest possible cost;
- Since 2016, two rounds (Mar-Apr and Oct) with four phases each;
- Each round has a budget of €4 billion
- For each technology a *maximum basisbedrag* is determined, reflecting the maximum premium for each technology
- By applying in the “free category” project developers can apply for a lower premium to increase their chances to be awarded

Introduction of SDE+

Competitive feed-in premium

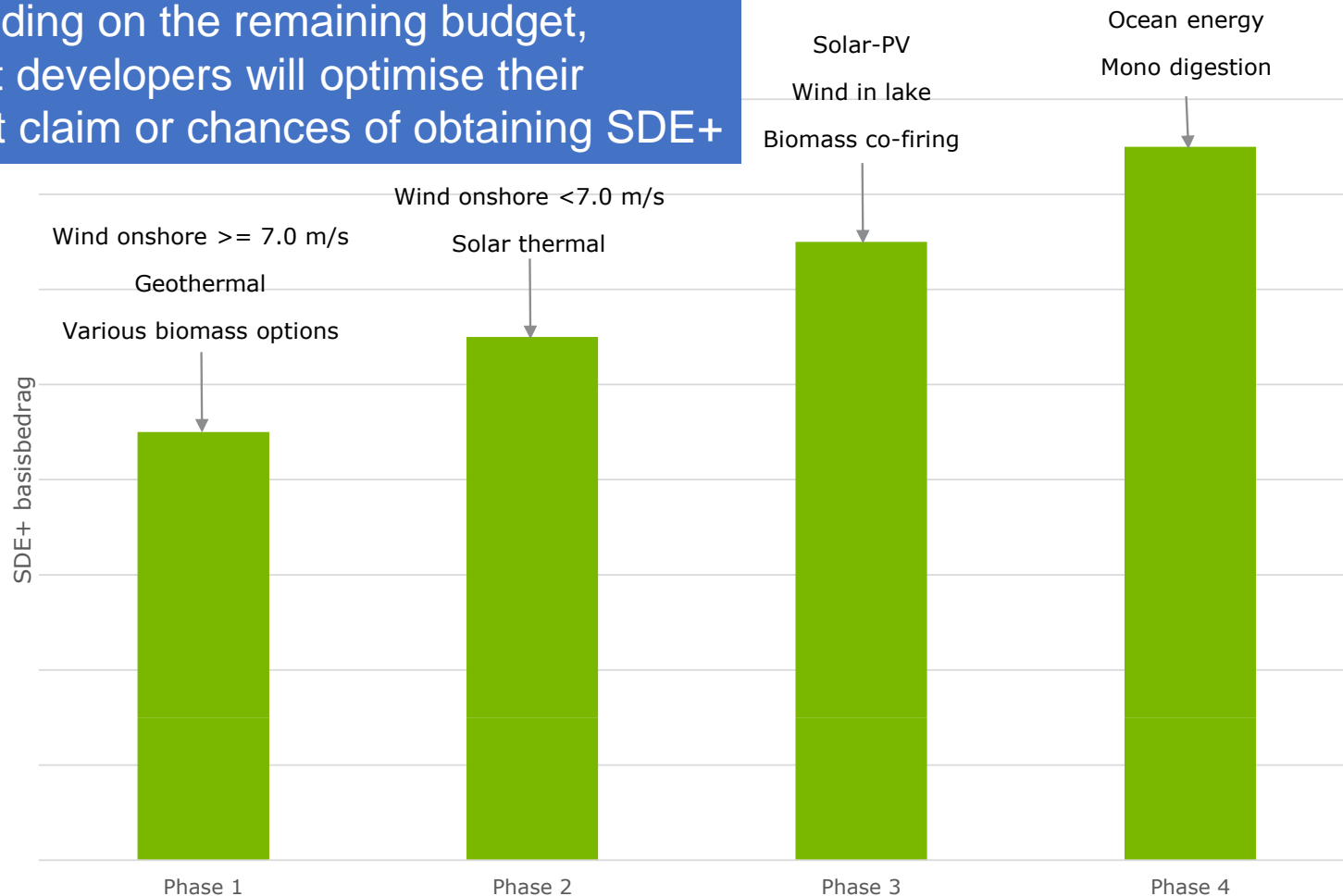
Four phases, each phase the max *basisbedrag* increases



Introduction of SDE+

Competitive feed-in premium

Depending on the remaining budget, project developers will optimise their budget claim or chances of obtaining SDE+

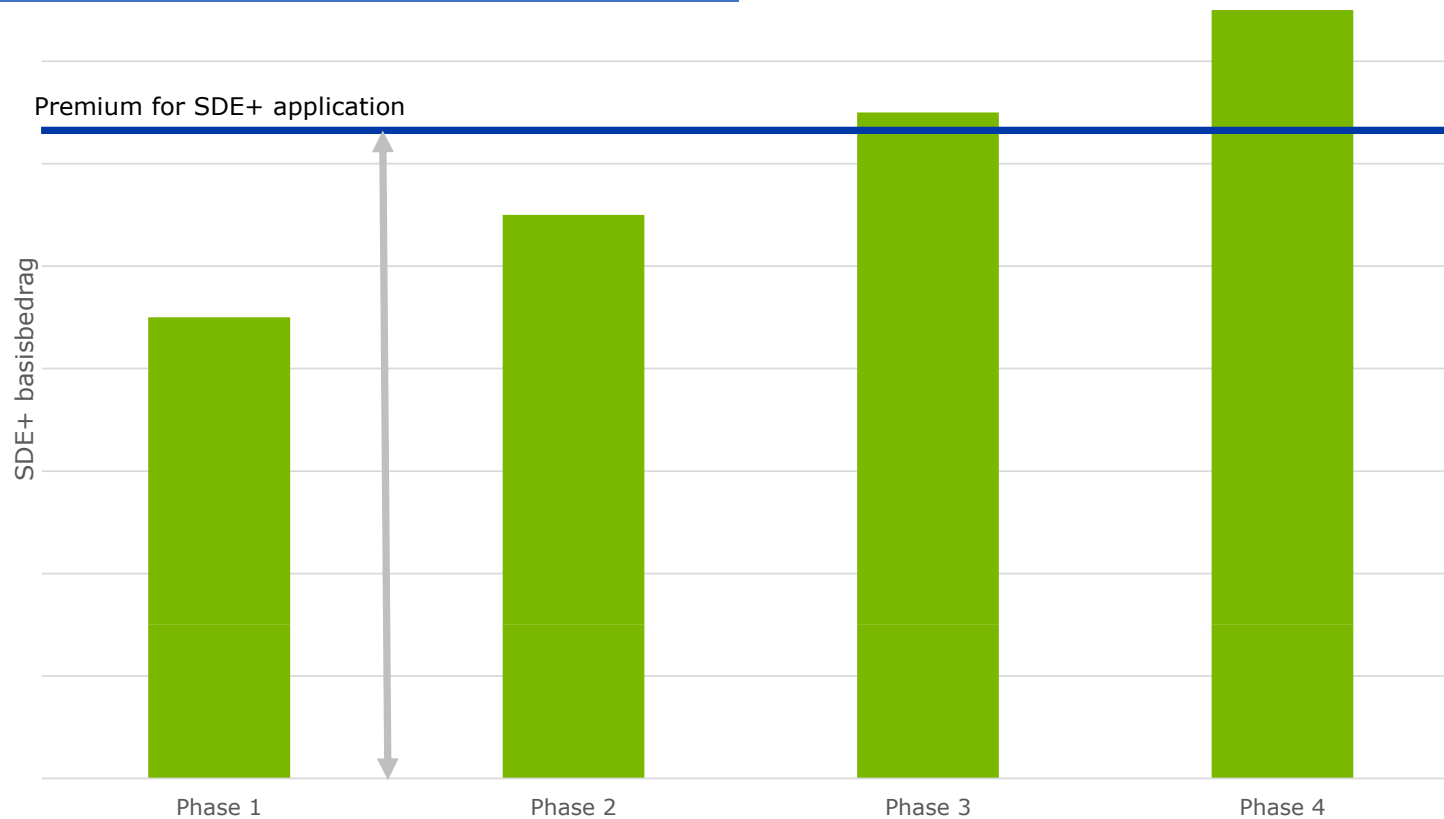


Introduction of SDE+

Example: Solar-PV project

Solar-PV project

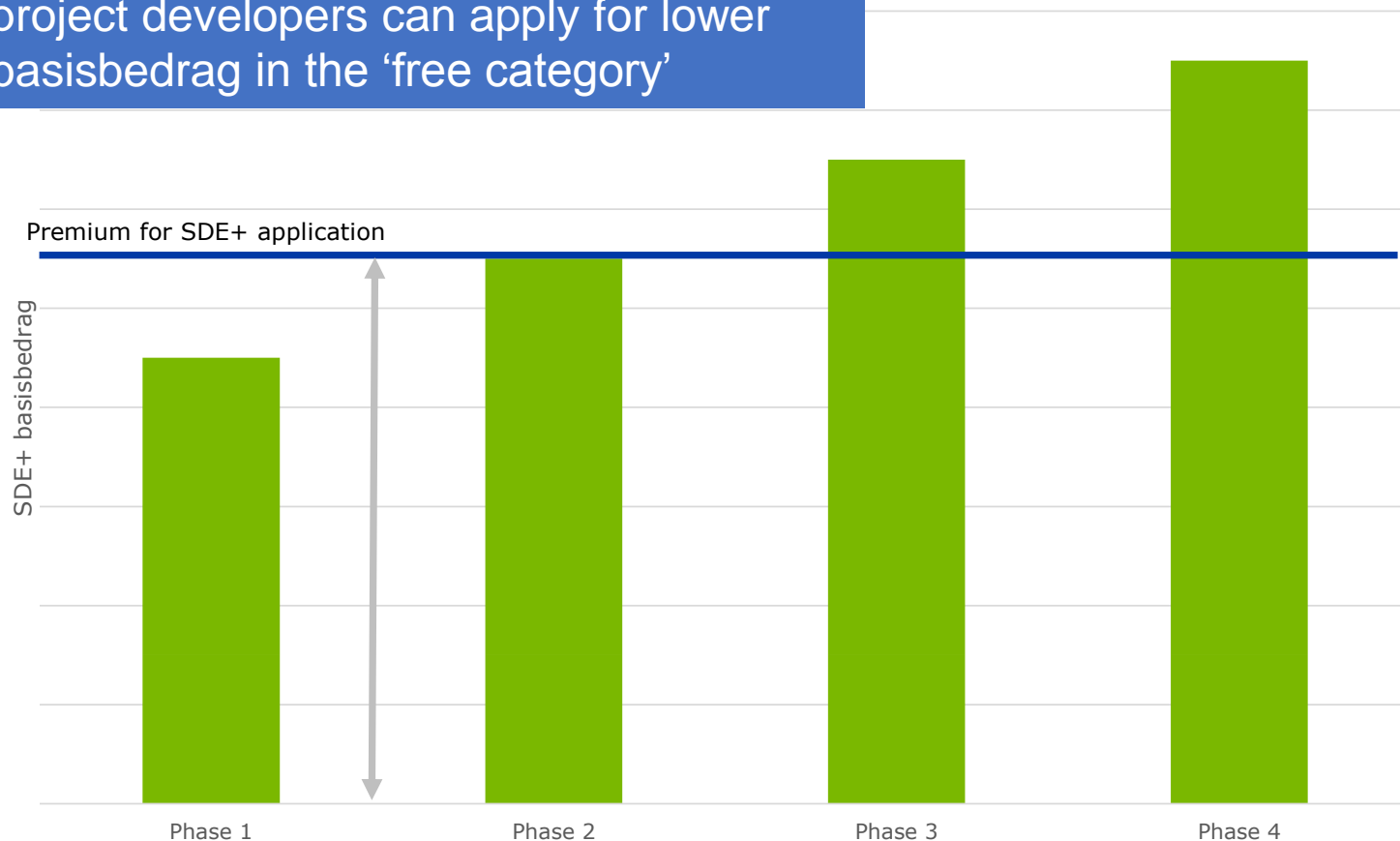
Max basisbedrag: 128€/MWh



Introduction of SDE+

Example: Solar-PV project

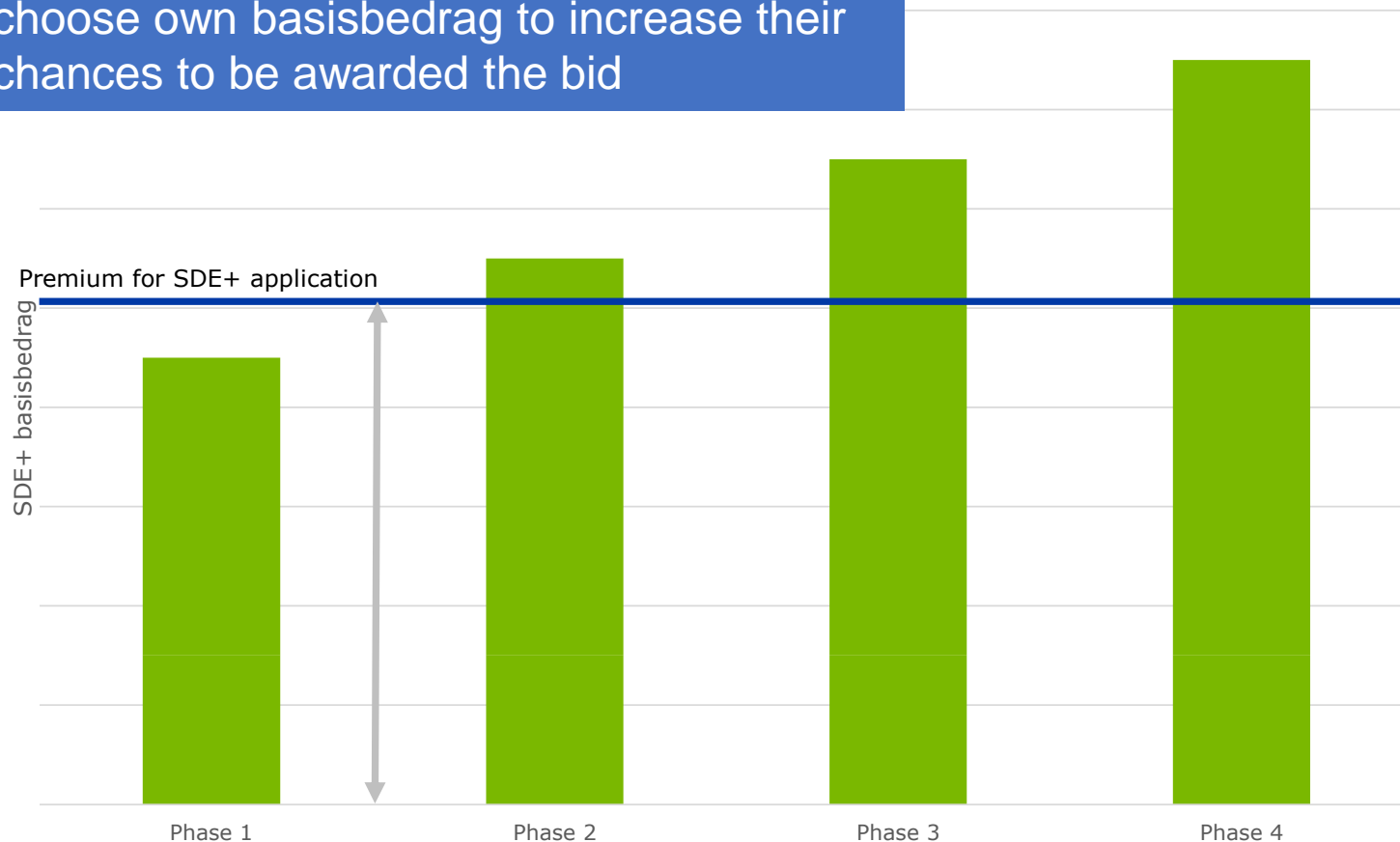
To increase chances of receiving SDE+, project developers can apply for lower basisbedrag in the 'free category'



Introduction of SDE+

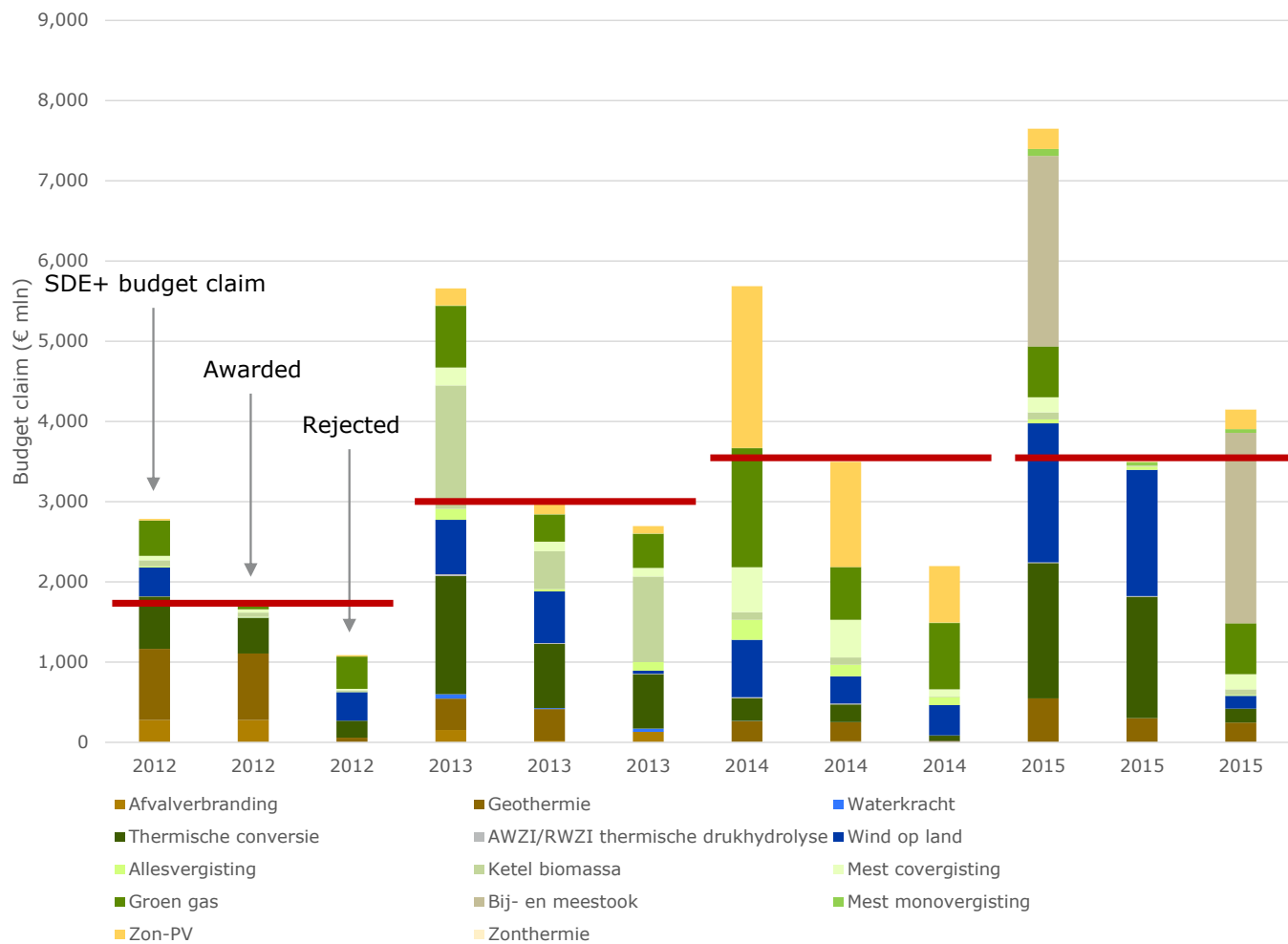
Example: Solar-PV project

In the free category, project developers can choose own basisbedrag to increase their chances to be awarded the bid



Efficiency

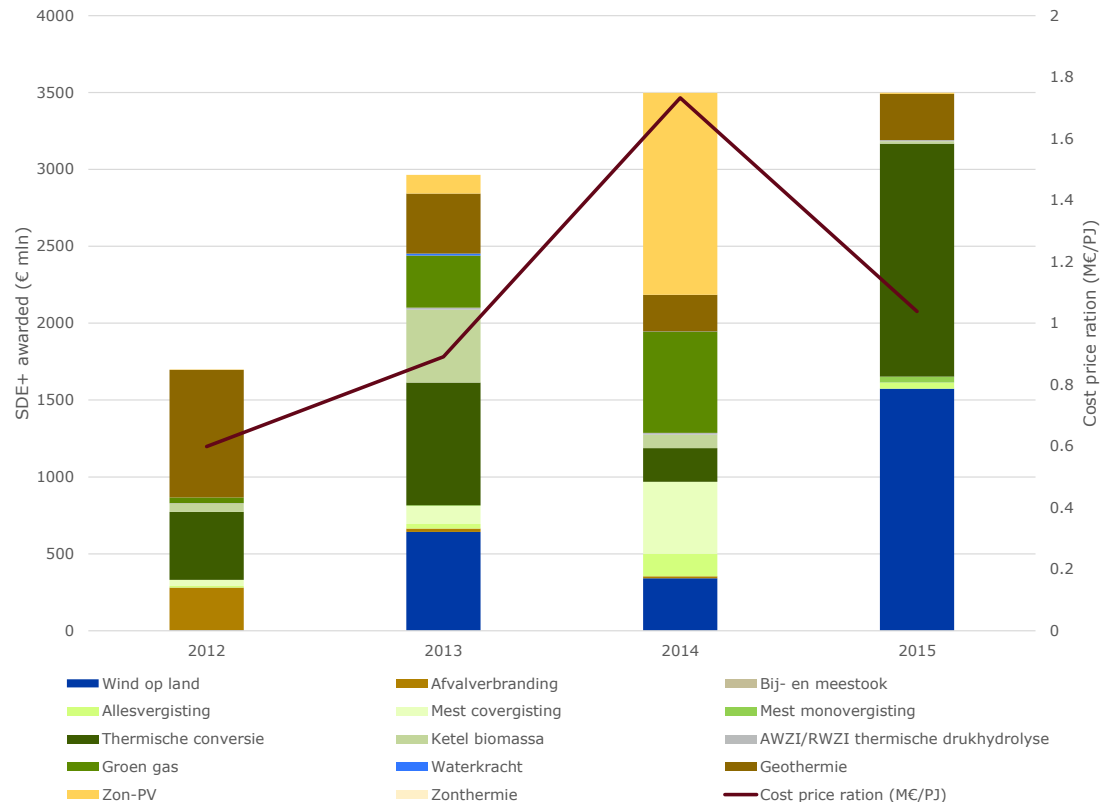
Results 2012-2015



Efficiency

Results 2012-2015

- Budget cap increases competition between categories
- More expensive options such as solar-PV can obtain SDE+ in free category
- Expensive categories (e.g. ocean energy) are not applying for SDE+



Effectiveness

Results 2012-2015: Realisation of awarded projects

SDE+ category	Project realisation period (based on SDE+)	Realisation rate
Wind	4 years	70%
Solar-PV	3 years	70%
Digestion	4 years	50%
Biomass boilers	4 years	70%
Thermal conversion	4 years	70%
Geothermal	4 years	30%

- For some categories realisation rates are low, because:
 - Projects were not financially feasible with awarded SDE+;
 - Projects were withdrawn;
- Penalties for not realising within realisation period:
 - Exclusion from SDE+ for three years
 - Financial penalty of 10% project value for projects >400M€

Lessons learnt

- SDE+ is **effective** in bringing down cost for renewable energy, but supports particularly cheap technologies
- Low financial prequalification requirements
- About **20% of the budget** is not being spend, because of awarded projects not being realized or higher electricity wholesale market costs
- **Separate auction for wind offshore**
- However...the Netherlands are lagging behind on achieving their 2020 targets and are likely not going to achieve it