

# OPTIMIZING AUCTION DESIGN FOR SOLAR PV

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WORKSHOP - RENEWABLES: A  
KEY DRIVER FOR CLEAN  
ENERGY TRANSITION

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NAVIGANT

# AGENDA

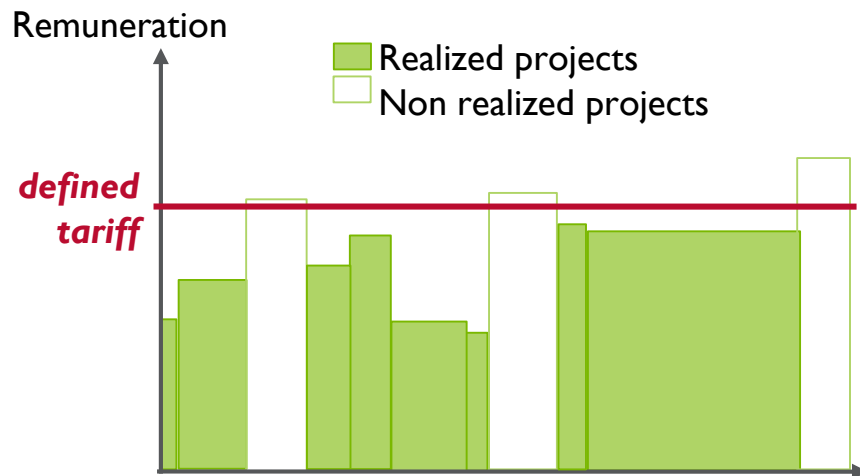
1. What: definition of auctions for renewables
2. Why: Motivations for auctions
3. How: Designing auctions
4. Key take-aways

# 1. What: definition of auctions for renewables



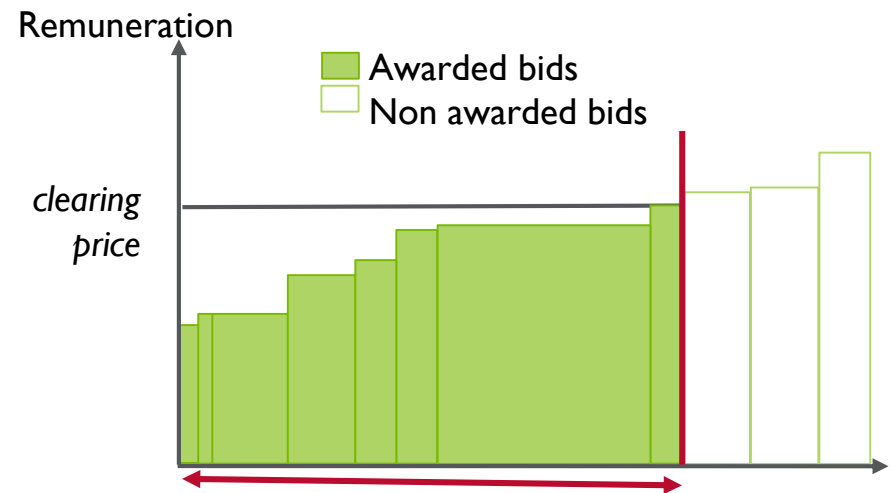
## Administratively set tariff

- Government sets price, market determines volume (projects)



## PPA-auction/competitively-set tariff

- Government sets volume, market determines price



### **defined volume**

*Capacity (kW), production (kWh), budget, grid capacity*

*Volume can be defined in the form of one or more project sites selected by the government*

## 2. Why: Motivations for auctions



# WHAT CAN A COUNTRY GET OUT OF IMPLEMENTING AN AUCTION?

- Discovering the price via the market is key in the face of rapidly falling costs for solar PV
- Auctions, as a competitive procurement mechanism, can help find out the current price of solar PV.
  - Price discovery advantage → discover the price on a regular basis, and keep up with changing prices.
- Experience with FIT shows adjusting tariff levels to falling costs of solar PV can come with a delay

Implementing an auction does not mean a administratively set FITs should be discarded for other technologies or even other installation sizes

# ADVANTAGES OF COMPETITIVE BIDDING EXPLAIN THE RENAISSANCE OF RES AUCTIONS, YET CHALLENGES ARISE

## Opportunities

- Control of maximum volume and support cost
- Support level is determined by the market, not the administration (market exposure and information generation)
- Competition between RES-E producers may lower prices (compared to administrative FIT/FIPs)
- Real-cost discovery

## Challenges

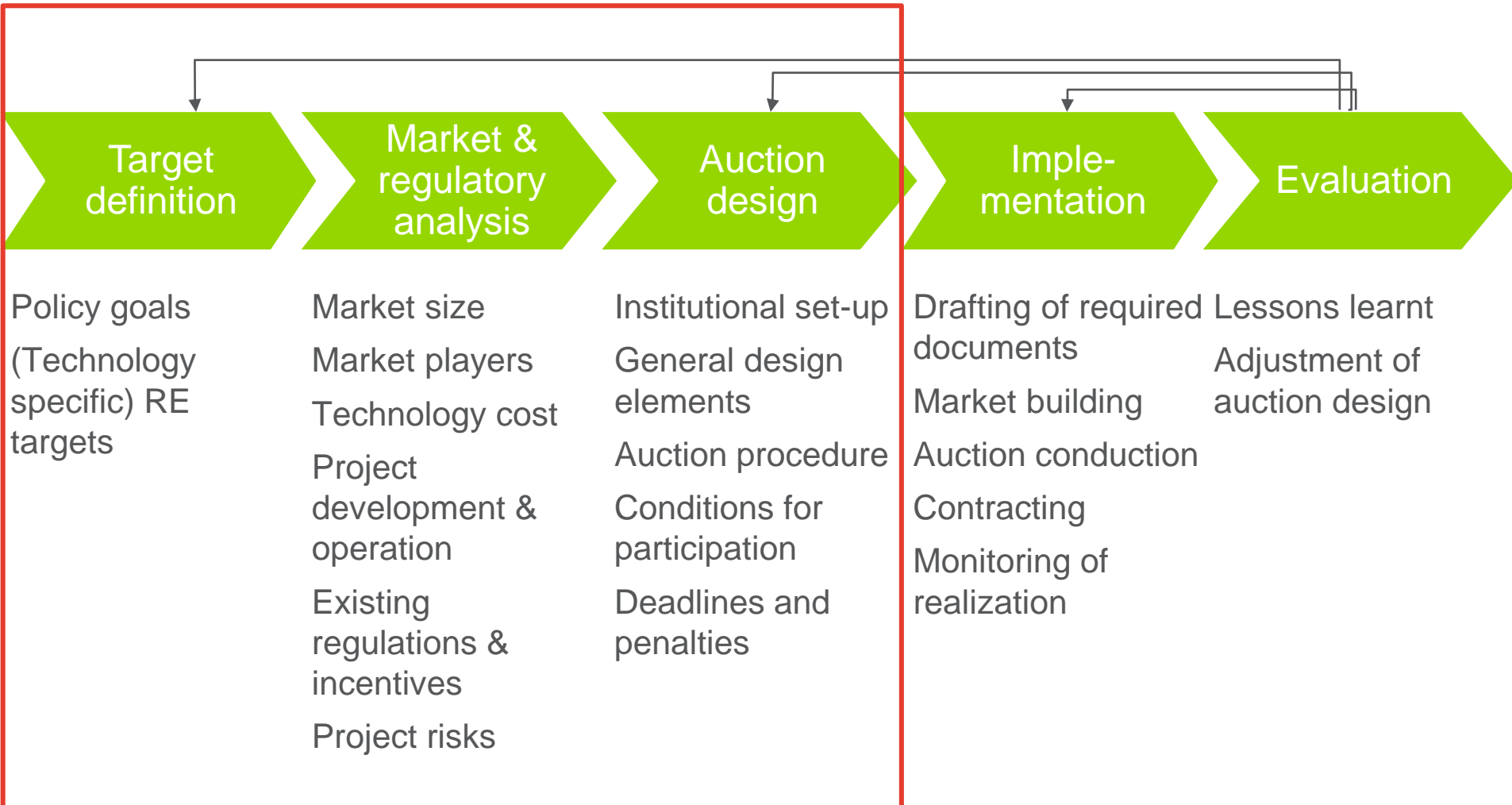
- Challenge of ensuring high realisation rates/target fulfilment
- Higher risk for RES-E producers than administrative FIT/FIP, challenging particularly for smaller actors
- Common value problems, uncertainty over project cost, and unexperienced bidders lead to “winner’s curse”
- Risk of strategic behaviour (collusion) leading to higher prices and support costs

### 3. How: Designing auctions





# OVERVIEW OF AUCTION PROCESS



# AUCTION DESIGN NEEDS TO BE TAILORED TO THE POLICY GOALS

## Target definition

- Contract the cheapest RE projects possible
- Reliably achieve RE target (per technology)
- Create attractive investment conditions
- Achieve other policy goals like
  - Contract projects with a positive (local) socio-economic impact
  - Guarantee a certain regional distribution of generation facilities (e.g. for grid concerns)
  - Maintain or achieve a certain mix of market players

# AUCTION DESIGN NEEDS TO BE TAILORED TO MARKET CONDITIONS

## Market & regulatory analysis

- Market size: level of expected competition sufficient?
- Market players: IPP: international and domestic?, existing or newcomers?
- Project development phases: duration, risks of project failure, required documentation, costs
- Existing regulations & incentives: land rights; permitting (construction, generation, grid connection, import licenses; LCR; regulation for international companies, financing, ...)
- Available grid capacity: administratively site selection? Conflicts with grid development plans by TSO/state-owned utility/local or regional government bodies?

# AUCTION DESIGN COMPRISES MORE THAN THE DESIGN OF THE AUCTION PROCEDURE

## General design elements

technology type, technology size, auctioned item (kWh, KW, budget), multi vs. single-item auction

### Auction Procedure

static vs. dynamic  
auctions, price, selection  
criteria, pricing rule,  
number of rounds

### Conditions for participation

timing of the auction,  
technical requirements,  
financial bid bonds

### Deadlines and penalties

## Institutions

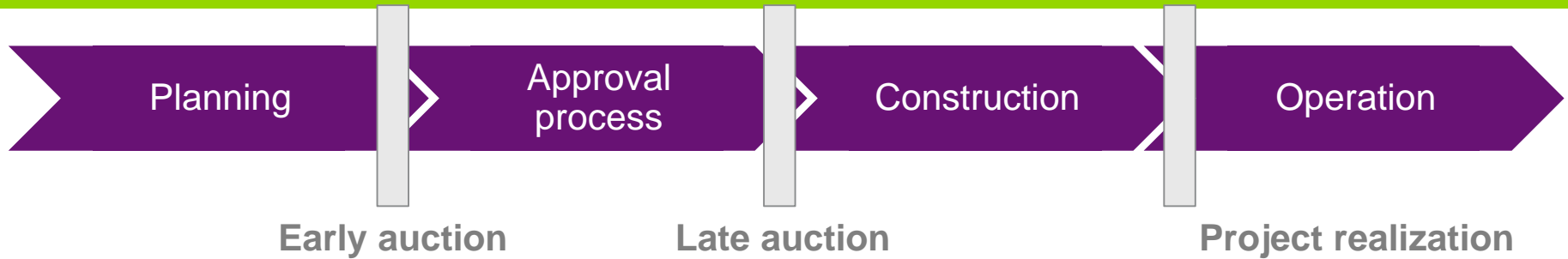
# THE WINNER'S CURSE: AN INFAMOUS RISK

**Definition:** The resulting price of an auction is binding. If a project cannot be realized economically at this price, the winner faces the “winner’s curse”.

## Reasons for winner’s curse:

- Auction design allows for speculation (low technical requirements for participation, low bid bonds, low penalties)
- Bidders are not well informed and bid “irrationally” (inexperienced bidders)
- Bidders do not know the price properly (low technical requirements for participation, long realization times)

# CONDITIONS FOR PARTICIPATION (I/II)



## Early auction

If the auction takes place before the approval process, delays in procuring important permits (e.g. land lease or environmental assessment) can lead to delayed realization or even project cancellation

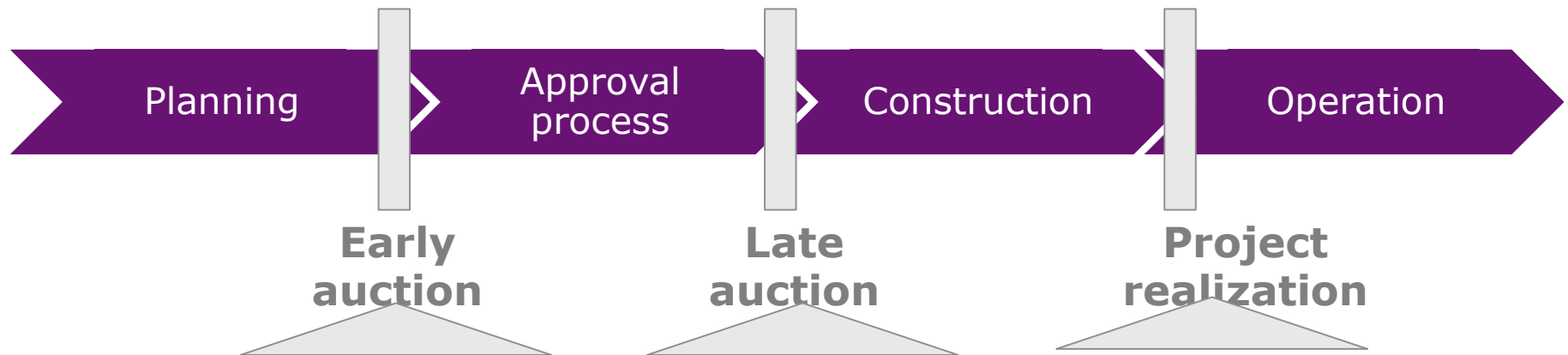
*If bidders develop the project:* Inexperienced bidders may bid below costs if they do not conduct sufficient site feasibility studies and procure key permits before the auction, and thus underestimate their costs.

## Late auction

The risk of a project failing is very high at the beginning, and very low before it starts operations. When the risk that a project will fail or face important difficulties during the permit approval phase is high, it is advisable to implement late auctions.

*If bidders develop the project:* Reaching a more advanced stage means that costs are now known that perhaps were not known earlier. More information about project costs is key in calculating a cost-covering bid (a way of mitigating risk of underbidding).

# CONDITIONS FOR PARTICIPATION (II/II)



## Conditions for participation

- + Technical: Selection of projects with sufficient progress in planning
- + Financial: Bidders with intention to realize
- Technical: Sunk costs
- All: Prohibitive barrier for (some) bidders

## Deadlines and penalties

- + Incentive to realize due to penalties
- Risk for bidders increases
- Prohibitive barrier for (some) bidders

## 4. Key take-aways





- Auctions are a way of competitively procuring renewable energy: the government defines the volume, while the market sets the price
- Policy makers have to understand the policy goals and the market environment to decide whether auctions are suitable or not
- Policy makers have to adapt the auction design to the policy goals and the market environment as there is no one-size-fits-all solution
- When doing so, make sure that the rules are clear, transparent, and easy to understand
- Auctions are not silver bullet to achieve everything at the same time

# CONTACTS

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