



Auction design – Part I

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— Agenda

- Definition and advantages of auctions
- Policy goals and market & regulatory analysis
- Auction Design Elements – Part I
 - Site selection
 - Winner's curse
 - Pre-qualification requirements

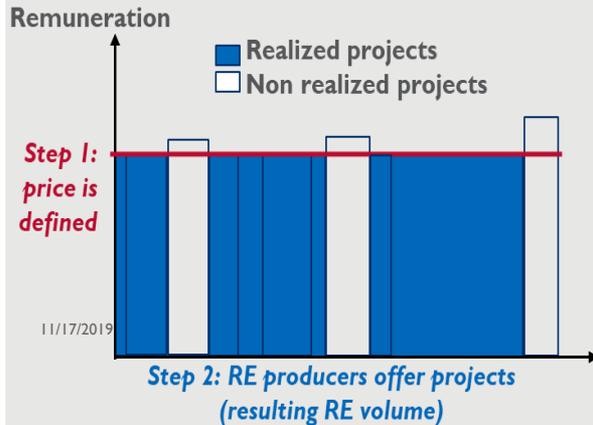


3 ways to determine RE tariffs: competitive procurement, negotiated procurement, administrative feed-in tariffs

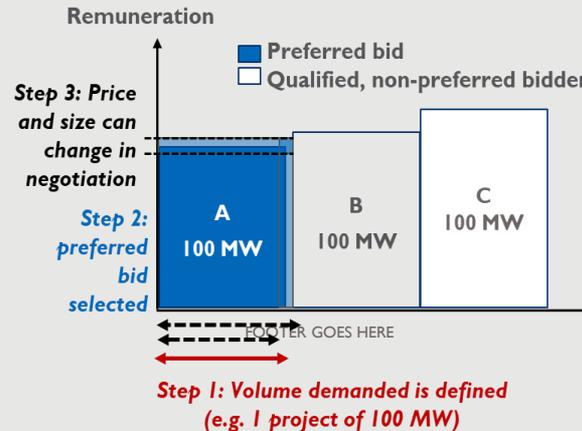
- All serve and require different levels of renewable energy market maturity
- All result in different reflection of market knowledge

Market-based tariff setting

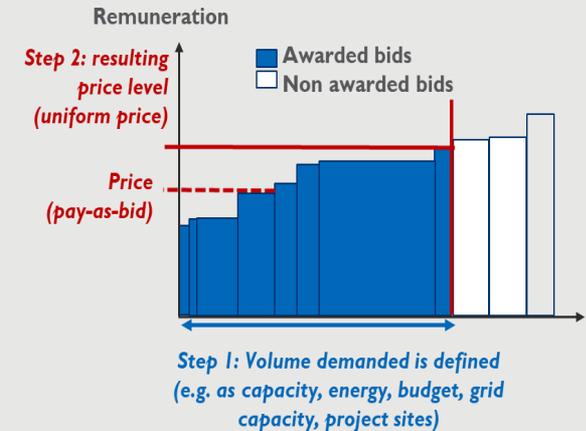
Admin. Feed-in tariff



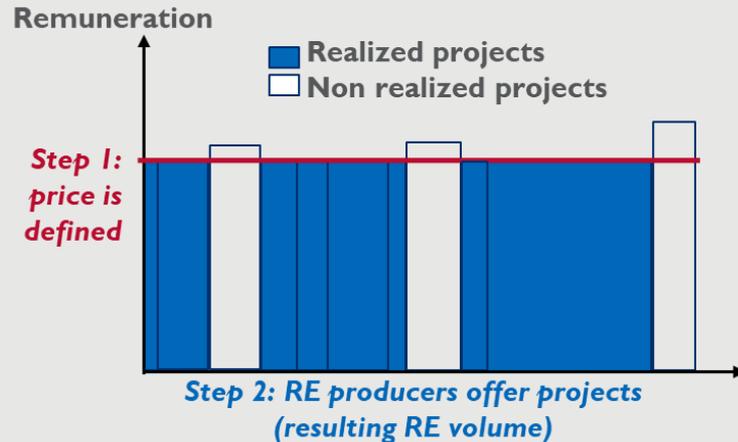
Negotiated procurement



Competitive procurement



Admin. feed-in tariffs provide high certainty for producers, but little volume control and price competition



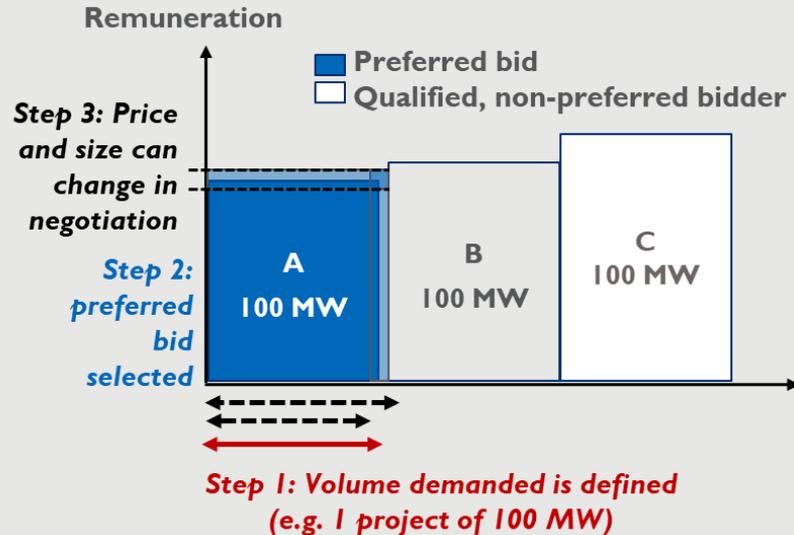
Advantages

- ✓ Does not require intense competition.
- ✓ Low risk for RE producers.

Disadvantages

- Low volume control unless FIT has budget/capacity cap.
- Slow in reacting to market price changes.

Negotiated procurement provides flexibility, but less scalable and transparent



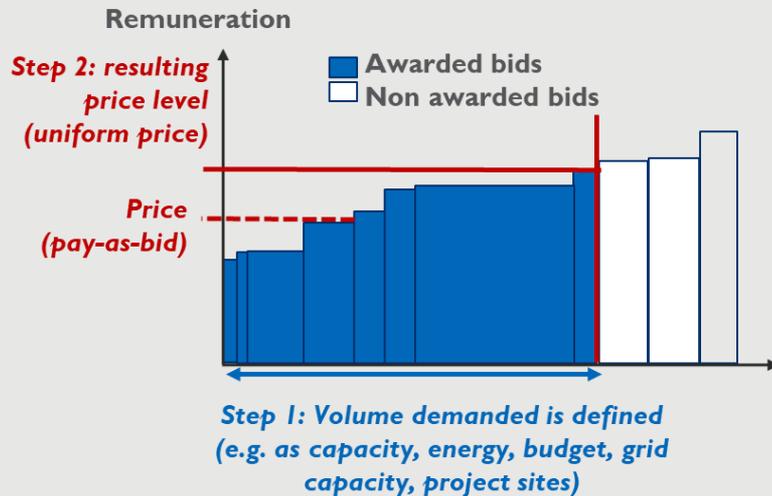
Advantages

- ✓ Volume control and flexibility to tailor project to need.
- ✓ Some competition in pricing but lower than in auction.

Disadvantages

- Risk of protracted negotiations → prices no longer reflective of market conditions.
- Limited transparency in selection process.
- Difficult to scale if many bidders present.

Competitive procurement provides strong volume control, price pressure and scalability, but needs competition



Advantages

- ✓ Volume control.
- ✓ Competitive pricing.
- ✓ Faster project execution after award than in negotiated procurement.
- ✓ Easier to scale up for multiple projects and rounds.

Disadvantages

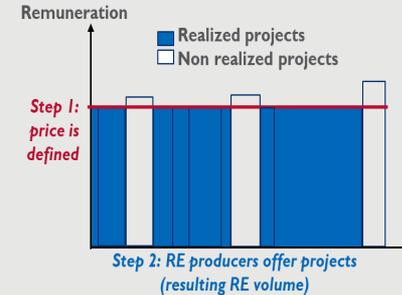
- Requires competition.
- Bidders face risk of not being awarded (sunk costs).
- Risk of underbidding and project failure.

... is competitive procurement always the best fit?

No.

- Less mature technologies or small-scale generators with difficulties managing risk/transaction costs from participating in an auction.

Admin. feed-in tariff

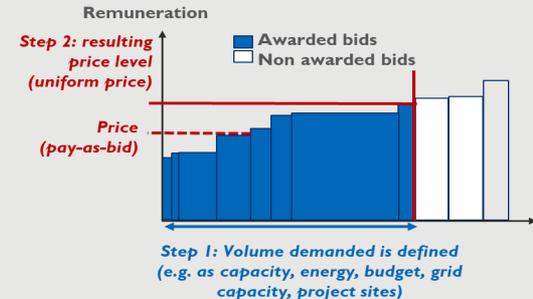


... can competitive procurement be implemented in small RE markets?

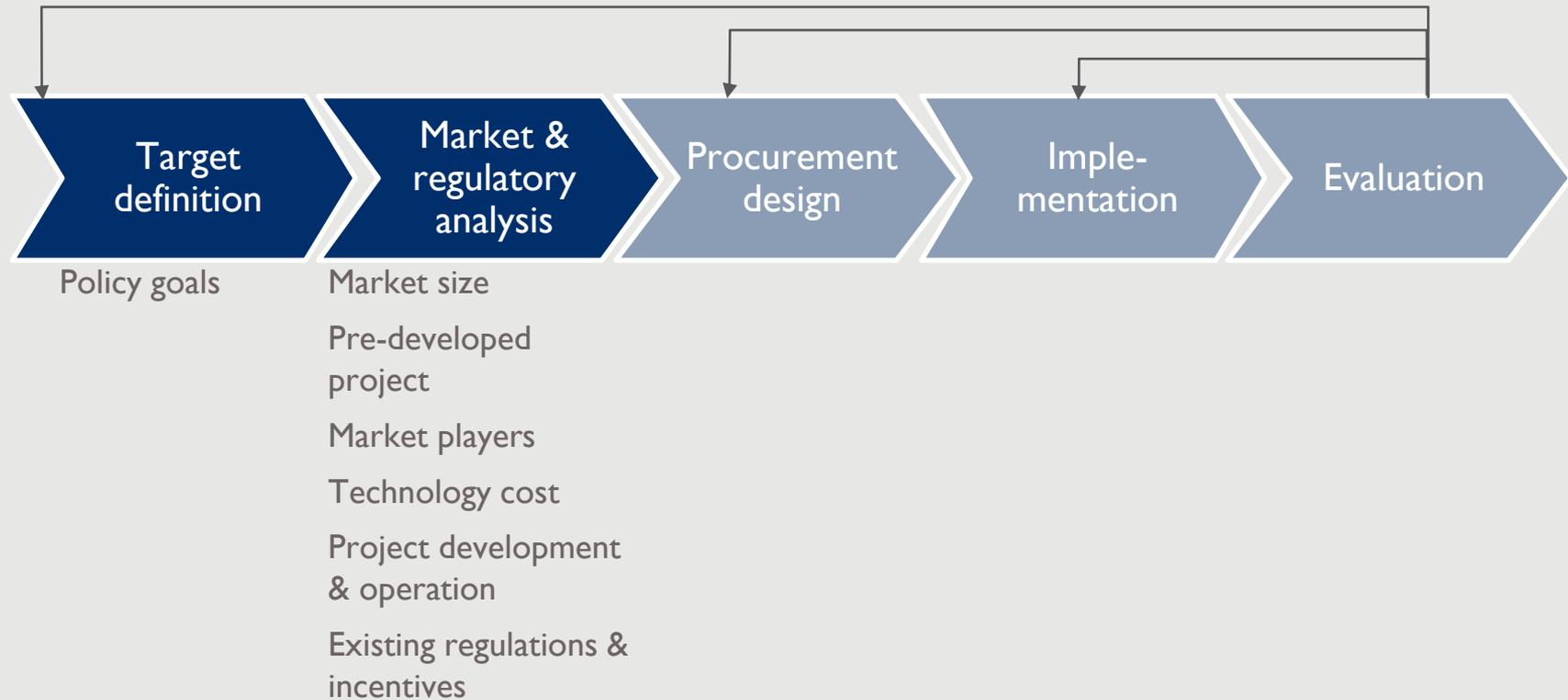
Yes.

- Formal participation and award criteria reduces the room for discretionary judgment calls in the process.
- Challenges to process of negotiated procurement often cause delays

Competitive procurement



Defining targets and understanding the market & regulatory analysis are essential input for design



RE targets and policy objectives need to be discussed and clarified early in the process



Target definition

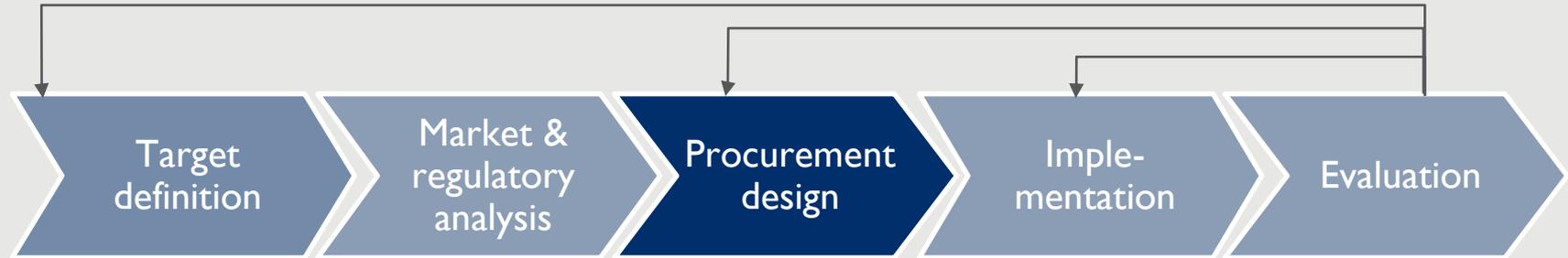
- **Main** goals:
 - Allocating available funding efficiently and
 - Achieving RE generation targets through timely project realization
- **Other** policy goals include e.g.:
 - Grid and system integration of awarded projects
 - Local value creation
- Recognize **trade-offs** between policy objectives and agree on prioritization, e.g.:
 - Financial guarantees help ensure seriousness of bids and increase project realization, but could increase financing costs and lead to higher bid prices.

Competitive procurement needs to fit local market conditions to be successful

Market & regulatory analysis

1. **Market size** helps determine the expected level of competition in the competitive procurement and should inform the tendered volume.
2. **Project development and operation phases** inform e.g. types of permits required before the auction.
3. Ensure **institutional capabilities** meet auction requirements.
 - Engage with key public stakeholders early on in the process, and select a point-of-contact.
 - Consider the procuring agency's capacity to transact, retain external expert advisors, especially at early stages

Focus on auctions: overview of competitive procurement design



What is auctioned

Procurement procedure

Conditions for participation

Enforcement of obligation

Rights for awarded projects

Overview of different design elements and functions

General design

Technology type, auctioned item (kWh, KW, budget), site selection approach

Competitive procurement procedure

Static vs. dynamic auctions, selection criteria, pricing rule

Conditions for participation

Timing of the auction, ceiling price, pre-qualification requirements, financial guarantees

Enforcement of obligations

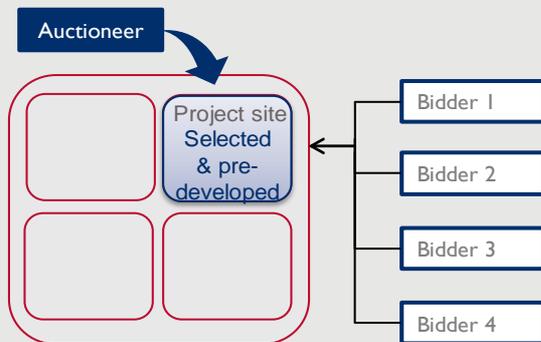
Deadlines and penalties

Institutions

Auction regulation, design, implementation, contract off-taker

Site selection and preparation: benefits and challenges

Government-site auction



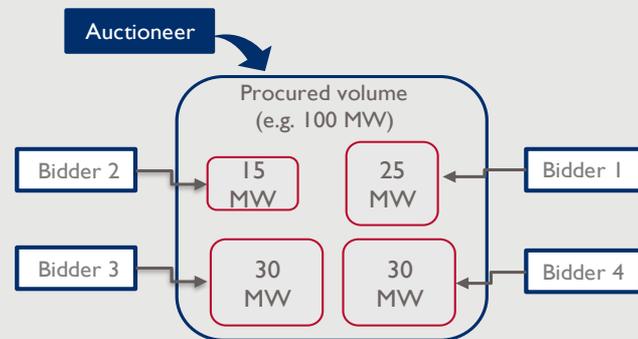
Benefits

- Grid-compatible RE development.
- Lower risks & costs of project development if adequate quality.

Challenges

- Higher admin. burden on government.
- Reduced role of bidders in finding optimal site.
- Risk of 'faulty' site selection and preparation.

Bidder-site auction



Benefits

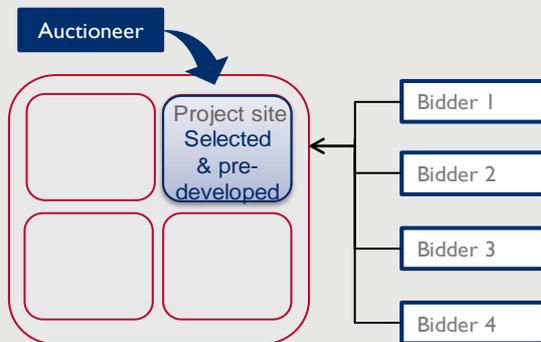
- Lower admin. burden on government.
- Site-specific risks mitigated through bidder-driven project development.

Challenges

- Lower grid-compatible RE development in absence of locational signals.
- Higher project risks if uncertainty about project costs and timeline.

Site selection and preparation: country examples

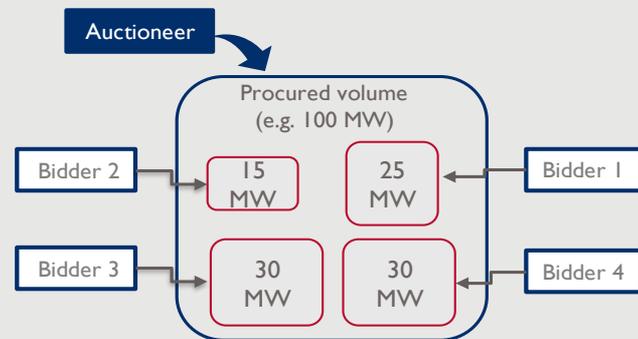
Government-site auction



Country examples

- Indonesia's geothermal
- Dubai/Abu Dhabi (UAE)

Bidder-site auction



Country examples

- Malaysia, Thailand
- Brazil, Mexico, Chile, Germany

Simulation – the winner's curse

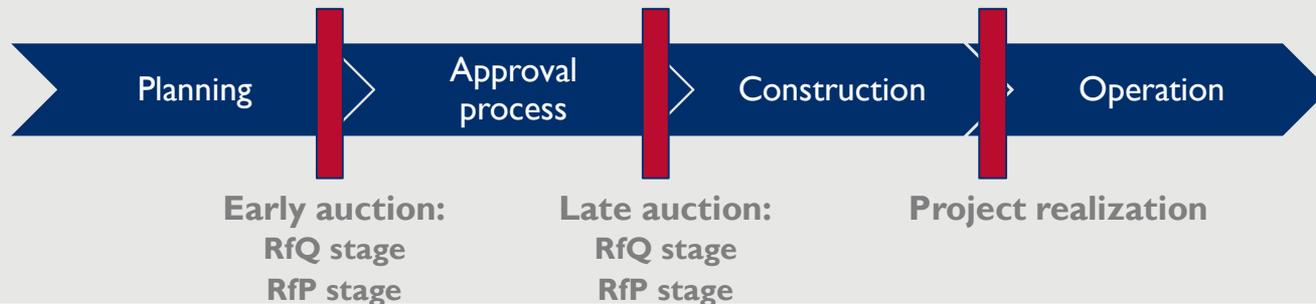
1. Competitive procurement for one (1) RE project.
2. The costs of the RE project (\$/MWh) are given by the contents of the bag. Costs per piece:
 - Dark chocolate → \$4
 - White chocolate → \$2
 - Milk chocolate → \$3
3. Each bidder estimates the costs of the RE project and notes it on a piece of paper. Cover the piece of paper.
4. Each bidder decides on a bid price considering its cost estimate and expected competition, and writes it on a piece of paper. Cover the piece of paper.
5. Static sealed bid auction – all bidders hand in their bids at the same time.
6. Announcement and evaluation of results.

Introduction to the problem of the winner's curse

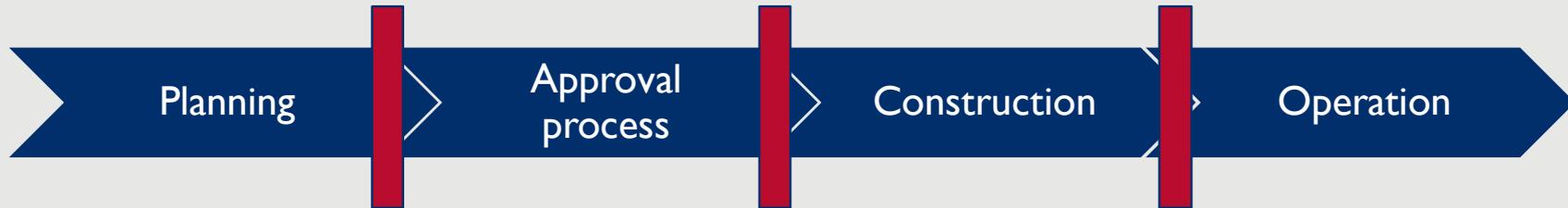
- **Definition**
 - Winning bids' bid price is less than the actual value of the good, which will result in a loss for the auction winner
- **Example**
 - Excessive yield or underestimated costs
- **Impact on bidders**
 - Often a large group of bidders tend to estimate the costs relatively well
 - If bidders are guided by their cost estimates in their bid strategy, the bidder who underestimates costs wins the auction
- **Adequate bidding behavior**
 - Upward adjustment of the cost estimation in case of having a winning bid
 - Adjustment of the bid where possible

Selecting permitting required before the auction is crucial

- Inherent project risk is highest at the start of a project
- If the auction takes place early in the project development process, i.e. before permits affecting the business case of a project are secured, there is a risk projects are delayed or cancelled.
- Feasibility studies and obtaining key permits before auction allows bidders to better estimate costs and makes projects more bankable. Feasibility studies should ideally be certified by an external agency
- Project failure risk declines with late auction.



Conditions for participation: balance is the key



Early auction:
RfQ stage
RfP stage

Late auction:
RfQ stage
RfP stage

Project realization

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

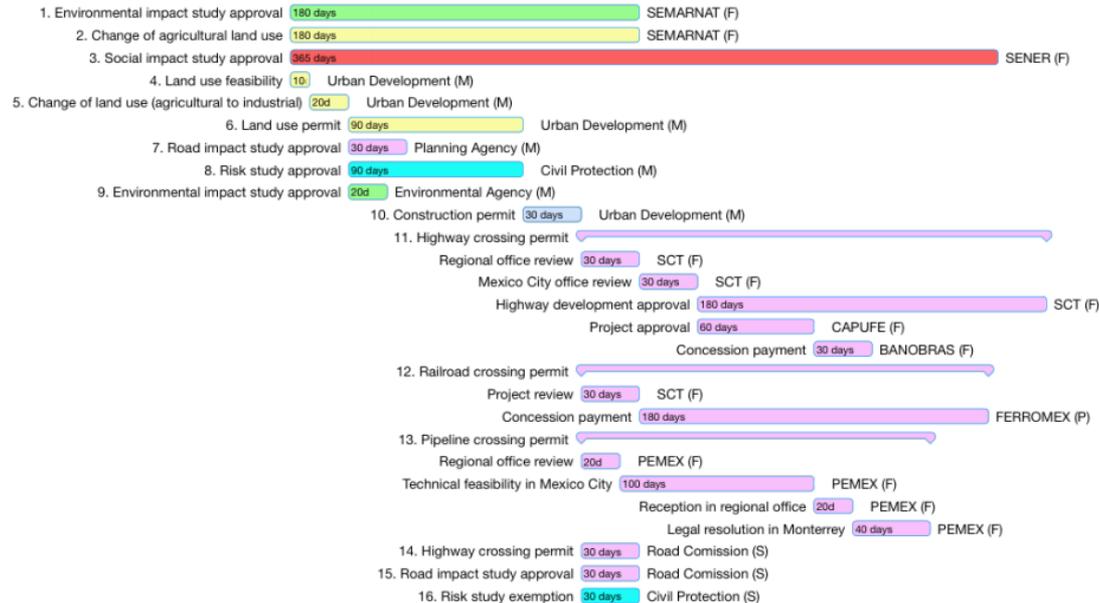
Bidder qualification: South Africa

Financial capacity: Financial statements, letter of support lender,

Technical capacity: independently reviewed forecast energy sales reports

Site requirements: proof of land acquisition (title deed/notarial lease/unconditional land option)

Be careful not to overburden bidders: In Mexico, EDF needed to interact with 13 agencies



Source: Villeda, 2017.

Notes: the bar colors represent duplicated permits across agencies and/or permits which's request could be unified. The Urban Development and Civil Protection municipal agencies took only 10 days to issue the permits (land use permit and risk study approval), once a reasonable fee was agreed. F=Federal, S=State, M=Municipal, P=Private.