

A photograph of a wind farm with several white wind turbines on a rolling green landscape under a blue sky with scattered clouds. The turbines are positioned in a line across the middle ground. The foreground is a lush green field with tall grass. The sky is a deep blue with wispy white clouds.

Moving from Auction Design 1.0 (least cost RE) to Auction Design 2.0 (balancing various policy objectives)

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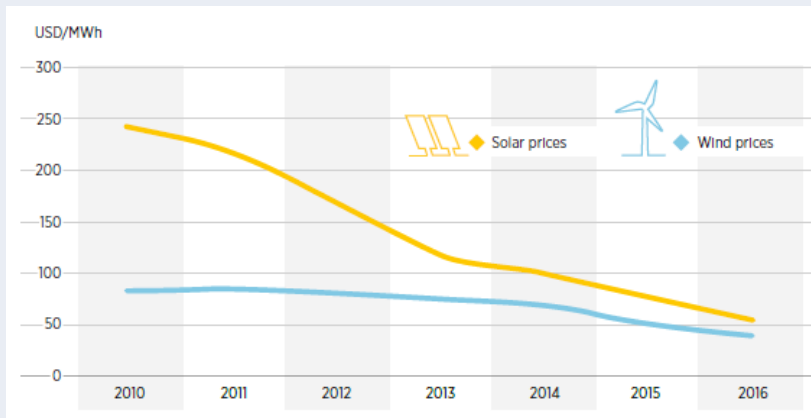
- Founder and director of IET
- Focus on sustainable energy policy and market design
- 14+ years experience in renewable energy policies
- 60+ publications on energy and climate
- 40+ countries work experience (consulting and presentations)



Moving from Auction Design 1.0 to Auction Design 2.0

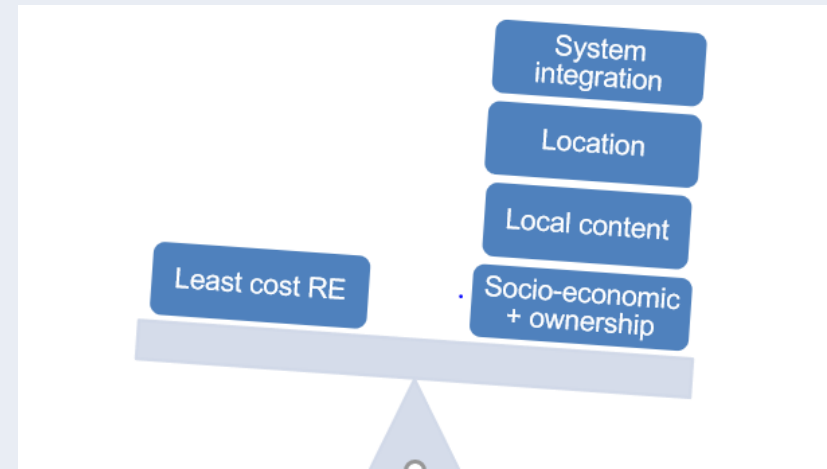
Auction Design 1.0

Objective:
Assure least cost procurement of RE



Auction Design 2.0

Objective:
Balancing various policy objectives



Auction Design 1.0:

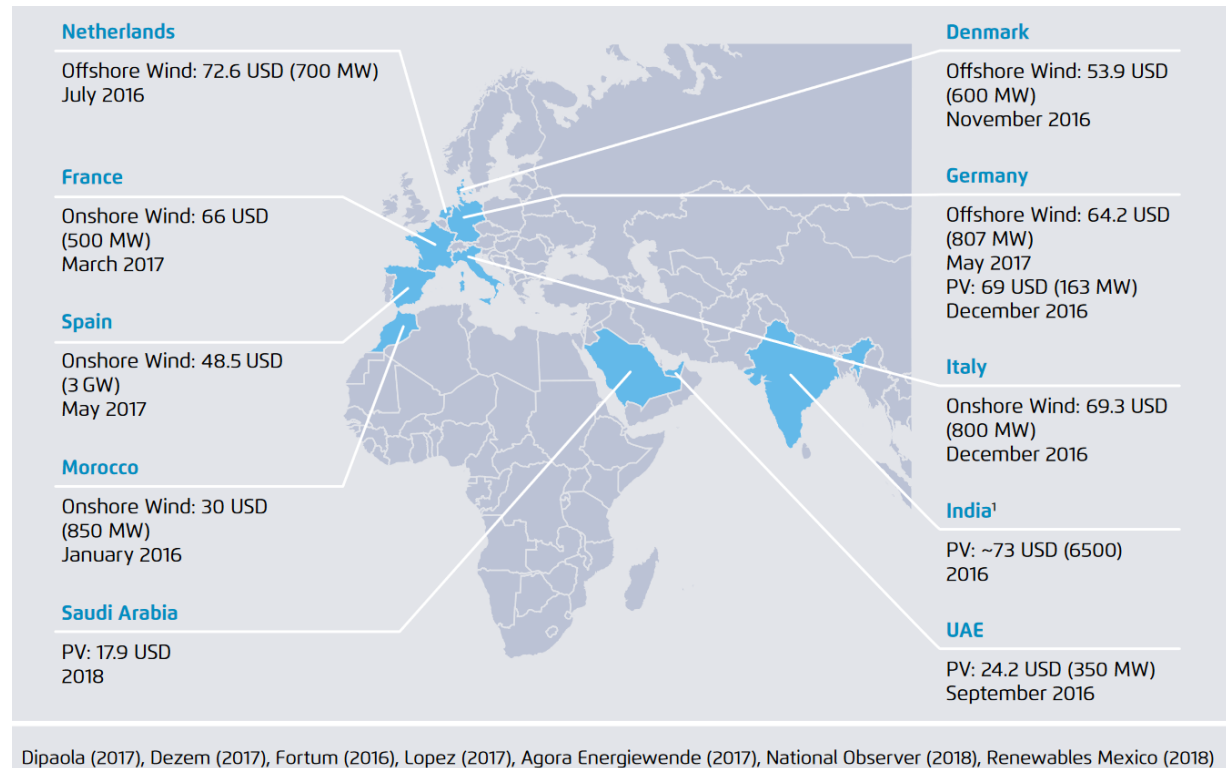
Recent Low-cost Auction Results

Recent Breakthrough Auction Results

- March 2016, **Mexico**:
1,853MW auctioned at USD
3.2 c/kWh (15 yr agreement)
- August 2016, **Chile**:
12,430GWh were auctioned
at USD 2.91 c/kWh (20 yrs)
- March 2017, **UAE**: 350MW
were auctioned at USD 2.42
c/kWh
- October 2017, **Saudi
Arabia**: 300 MW were
auctioned for USD 1.79
c/kWh (!!) (25 yrs)



“Recent” Auction Results

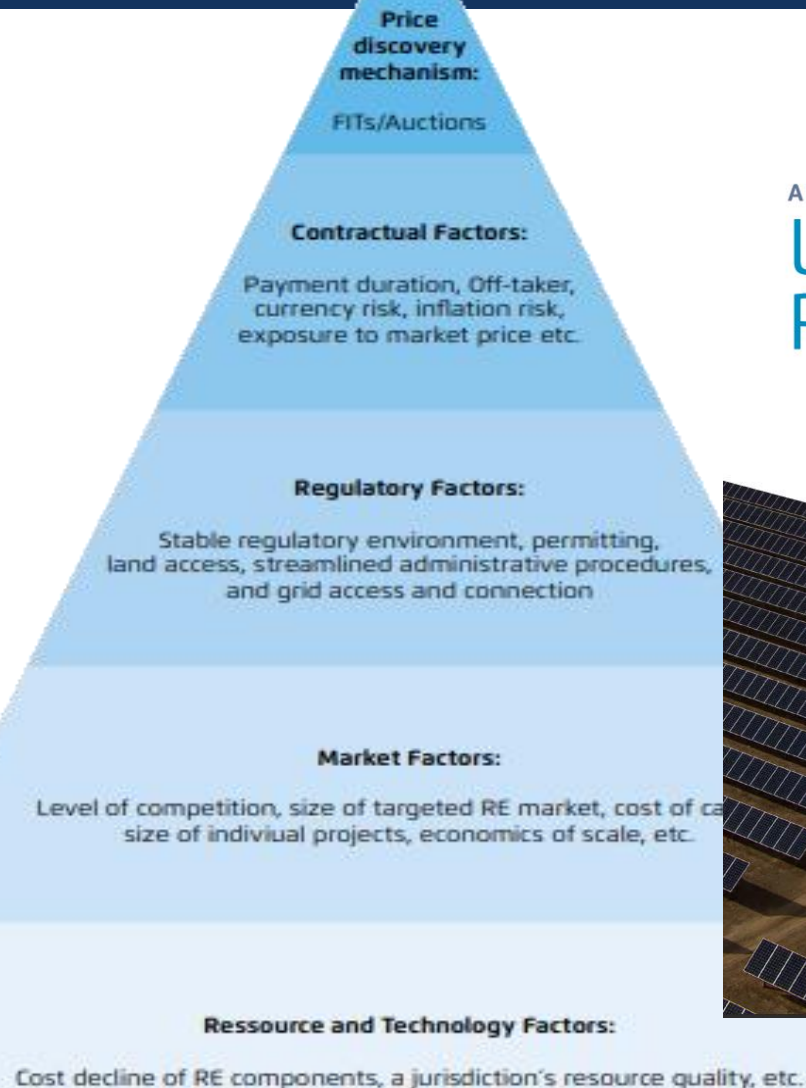


Vija Pakalkaite (ICIS): RES auctions designs and results: comparison across the EU

Auction Design 1.0:

How to achieve low-cost RE
procurement?

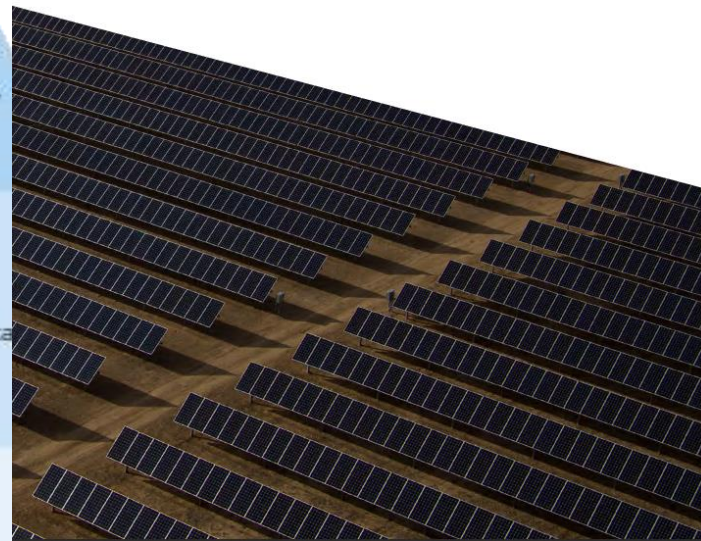
The enabling environment pyramid



A WORD ON

LOW COST RENEWABLES

The Renewables Breakthrough:
How to Secure Low Cost Renewables



Source: Jacobs, Couture and
Appleman (2018)

Market factors

Market factors

- Market size
- Project size
- Cost of capital
- Presence of a qualified workforce
- Presence of key supporting infrastructure

Regulatory factors

- Stable regulatory environment
- Streamlined permitting and administrative procedures
- Land access
- Grid interconnection procedures
- Other factors

Contractual factors

- Solvent and reliable off-taker
- Contract duration
- Fixed prices (payment per kWh)
- Inflation indexation
- Currency risk mitigation
- Dispatch and curtailment rules

Auctions in low-income countries



- The World's bank Scaling Solar project offers a “one-stop-shop” for streamlining Solar PV projects, enabling several successful competitive bidding rounds in Sub-Saharan Africa.
 - **Zambia 1:** While nearly 80% of the population does not have access to electricity, a first tender was awarded in 2016, bringing 47.5MW solar energy for a ground-breaking 6.015 cents/kWh tariff, fixed for 25 years.
 - **Zambia 2:** Another 500MW production capacity has been agreed on, of which 180MW will be awarded in an initial procurement round.
 - **Senegal:** In April 2018, two utility-scale solar plants with a total capacity of 60MW were awarded for just under 4 Euro cents/kWh (3.80 and 3.98 respectively), thus providing the cheapest electricity source in the entire country.

Source: World Bank Scaling Solar (2018)

Auctions Design 1.0:

Basic Design for Least Cost Procurement

1. What is being auctioned, how much, and when?
(Procurement schedule)
2. What payment will winners receive? **(Payment modalities)**
3. What mechanisms is used for price determination? **(Price-finding mechanism)**
4. How can I ensure that projects will actually get built?
(Penalties for none-compliance)
5. Who can participate in auctions? **(Pre-qualifications)**
6. On what basis are bids evaluated? **(Selection criteria)**

Interesting Aspects of Auction Design 1.0:

- Competition vs. project realization:
 - Pre-qualification requirements: How to balance material and financial pre-qualifications?
 - Which elements should be defined as pre-qualification and which as part of selection criteria?
 - How to deal with low levels of competition?

Ann-Katrin Hanke (KIT/ Takon): How not to Design Renewable Energy Auctions: Endogenous Rationing

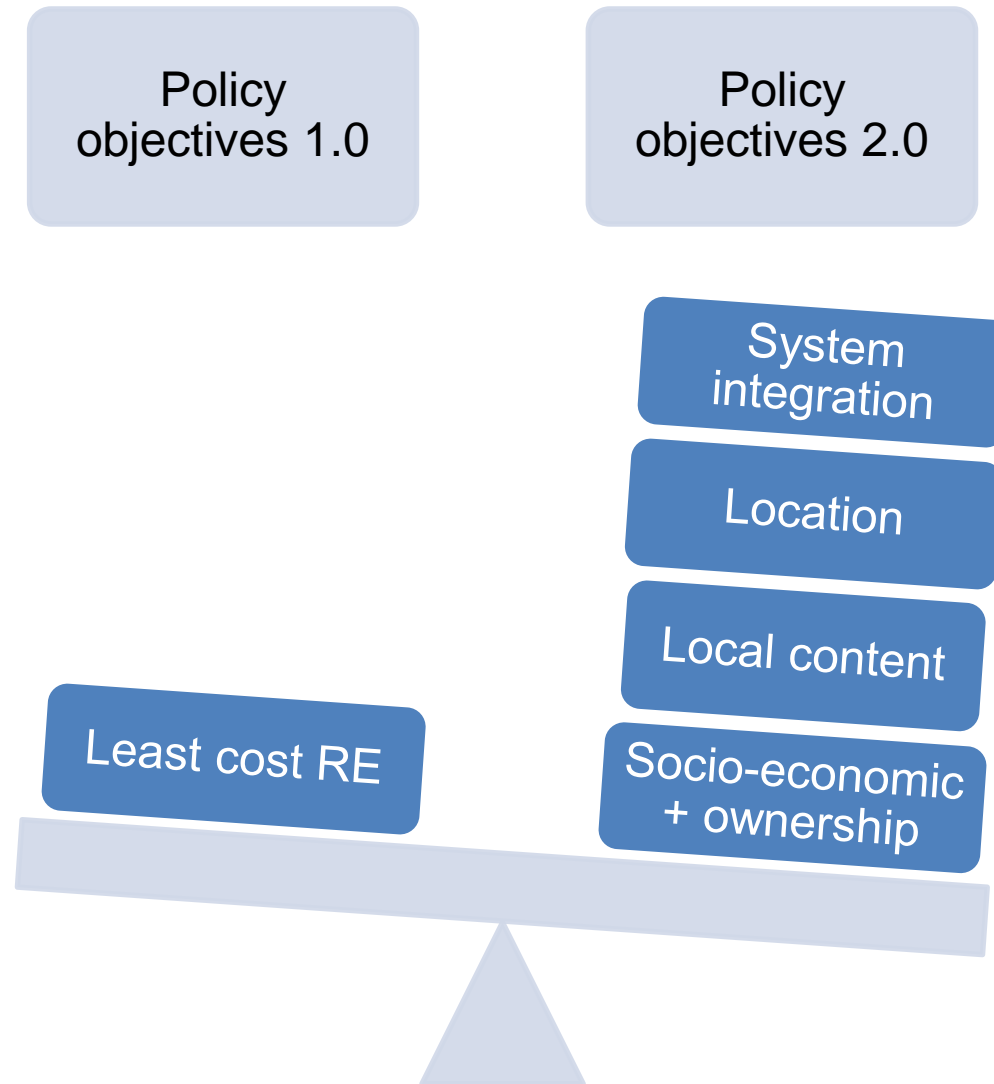
- Winning bids and eligibility:
 - How can PPAs help project developers to win bids

Dominik Huebler (NERA): PPA als "Joker" bei der Teilnahme an EE-Ausschreibungen

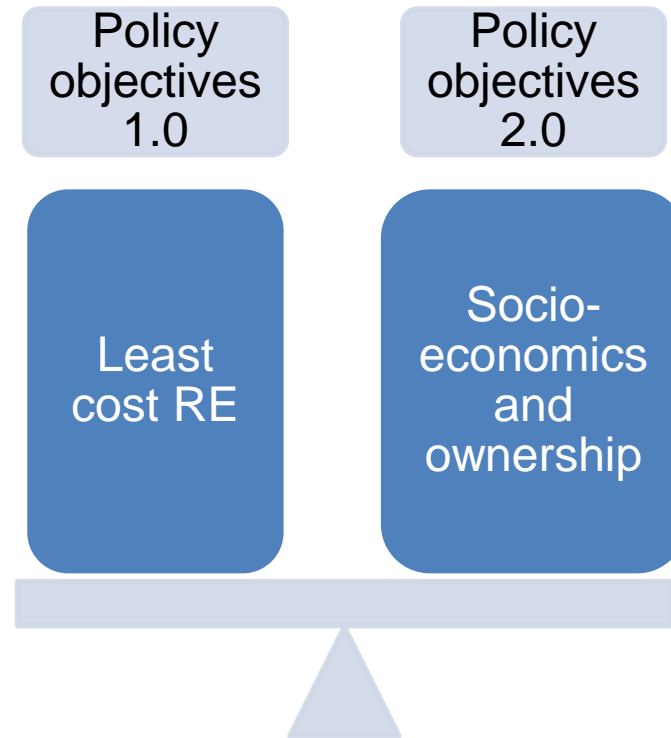
Solar Auctions 2.0:

Balancing Low Cost with Other Policy Objectives

Balancing various Policy Objectives



Balancing various Policy Objectives: Socio-economics

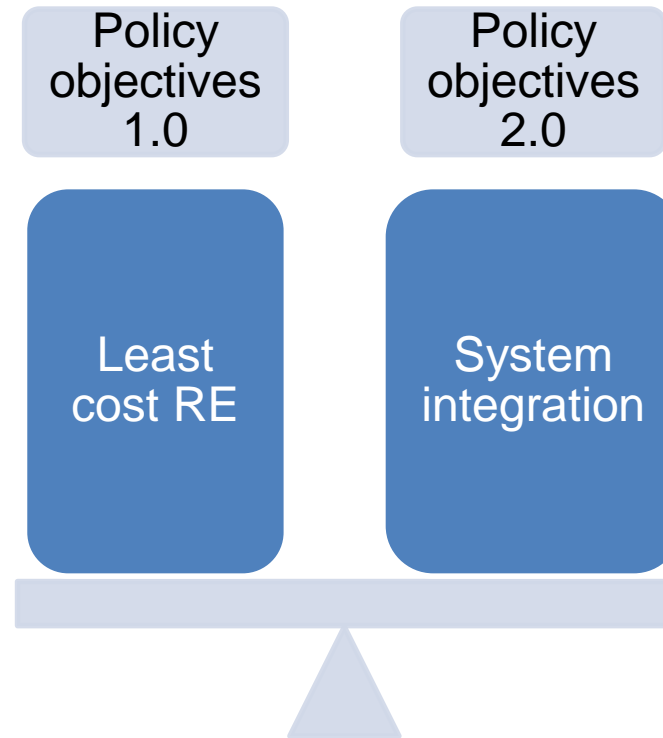


Social Impact Criteria and Local Content in South Africa



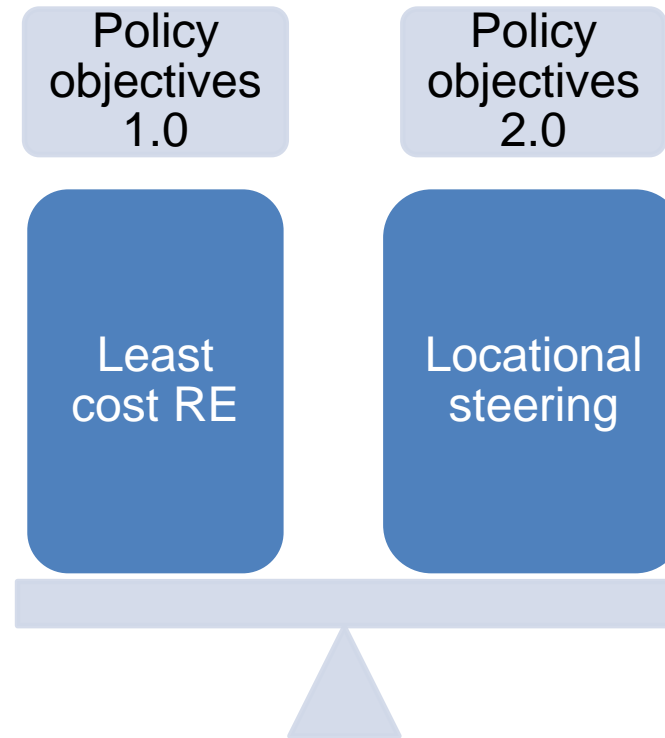
- Several economic development scoring categories (30% non-price):
 - **Job creation:** specifically for SA citizens, black citizens, and local communities
 - **Local content:** measured by the % of construction costs spent on South African goods and services
 - **Ownership:** shareholding by black citizens and local communities in various stages of the supply chain
 - **Management Control:** top management positions held by black citizens

Balancing various Policy Objectives



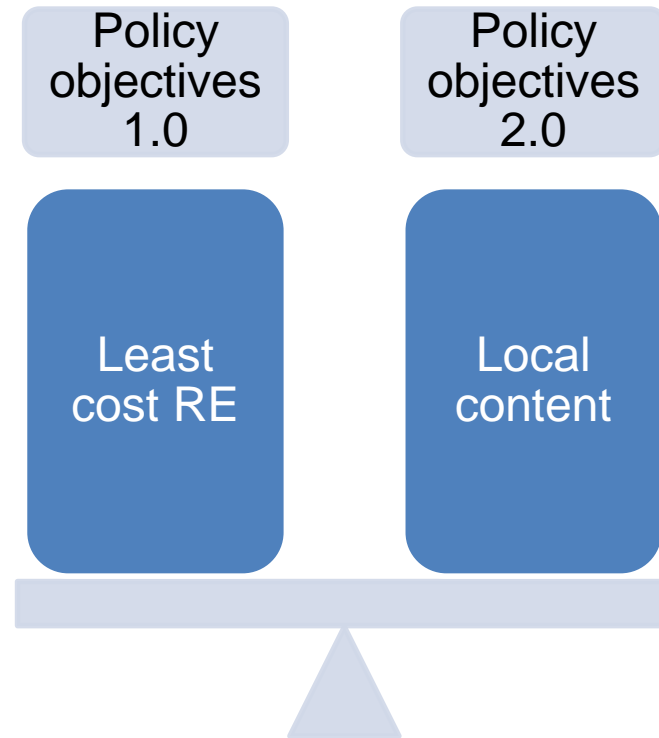
Bernhard Strohmayr (BEE): Innovationsausschreibungen im EEG

Balancing various Policy Objectives



Silvana Tiedemann & Ana Amazo (Navigant): Wenn das Ergebnis nicht passt: Standortsteuerung in Ausschreibungen

Balancing various Policy Objectives: Local Content



Vasilios Anatolitis (Fraunhofer ISI): Empirical insights on local content requirements from RE auctions in India.

**Thanks for your attention!
... and cooperation !!!**

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