



# Localization Case Study on South Africa's Utility-Scale Wind and Solar PV Sectors

SASIA/SAWIA Webinar

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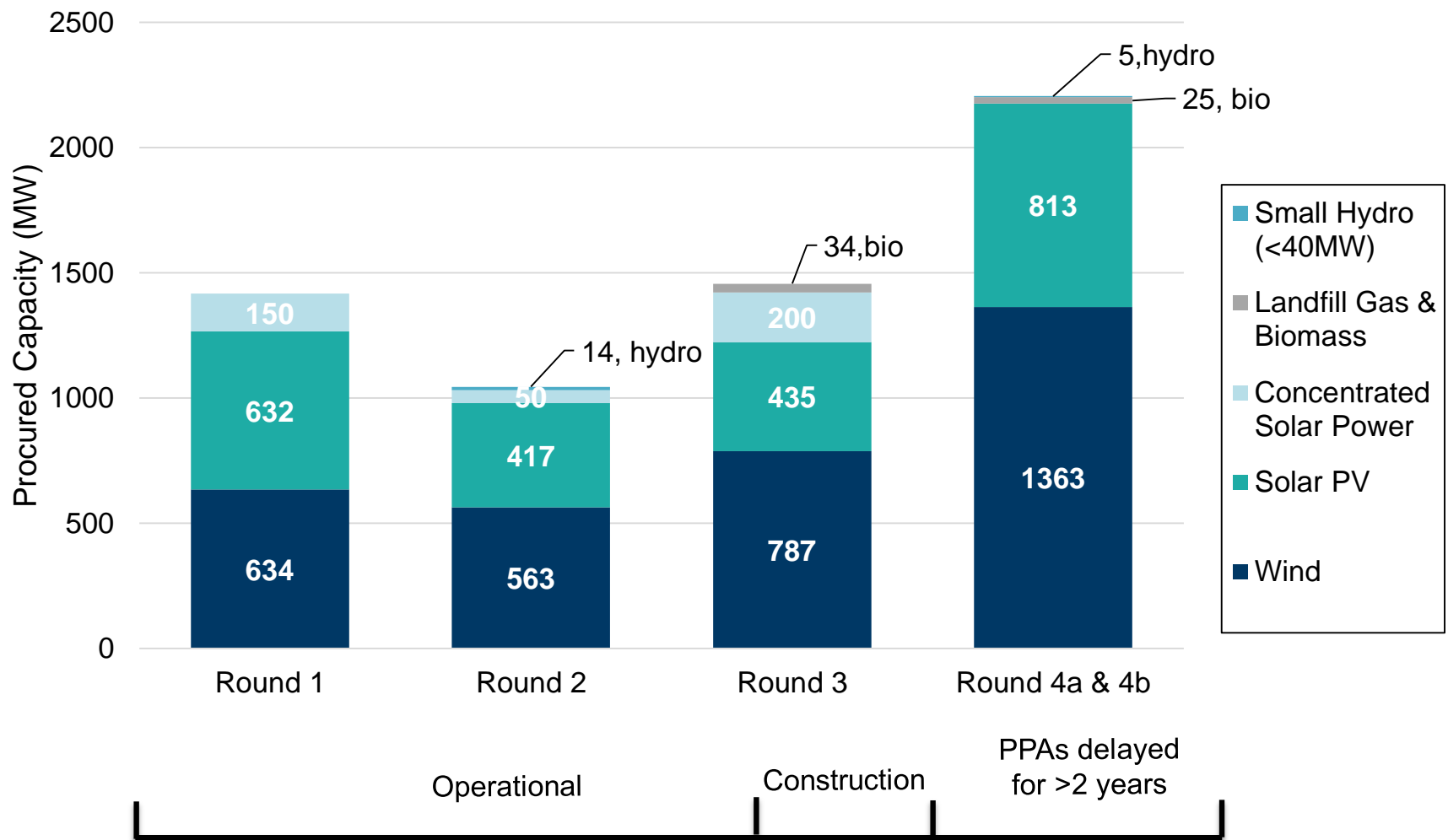
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## Presentation Outline & Agenda

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Overview of South Africa's Renewable Energy Independent Power Producer Procurement Program (REI4P)
Local Content Achievements and Challenges
Lessons Learned

## Since 2011, South Africa procured >6GW from 92 utility-scale renewable energy IPPs of mostly wind (55%) and solar PV (38%)



## Despite delays REI4P had many positive achievements, like local jobs and price decrease of ~75% for solar PV and ~55% for wind in 5 years

Item	Round 1	Round 2	Round 3	Round 4a
Prices for Solar PV (UScents/kWh in 2015)	33	20	11	8
Prices for Wind (UScents/kWh in 2015)	14	11	8	6
Local Content Averages (Solar PV)	38.4%	53.4%	53.8%	64.7%
Local Content Averages (Wind)	27.4%	48.1%	46.9%	44.6%
Jobs Created During Construction (Solar PV & Wind)	4,191	4,057	4,731	6,656
Jobs Created During Operation (Solar PV & Wind)	8,578	6,047	16,019	17,434

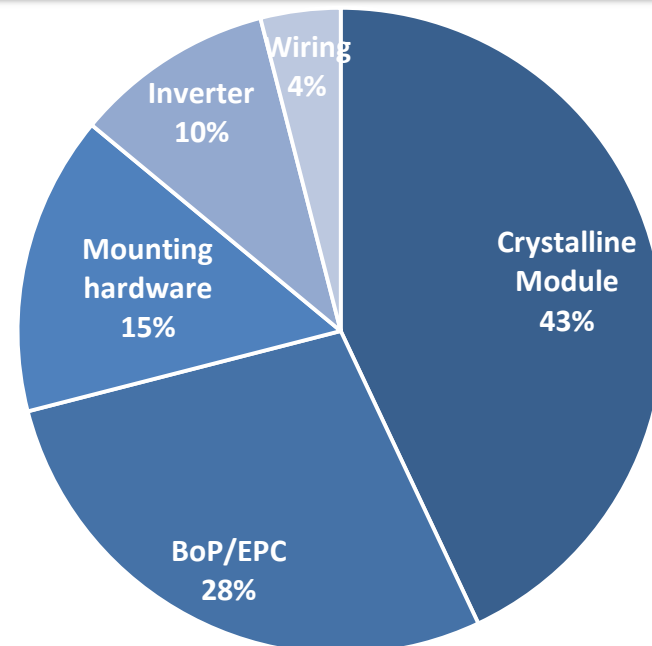
*Note: 1 job = 12 person-months at 40 hours per week for South African citizen; Prices are indexed from April 2014 Values; Assumes a 10:1 Rand to USD conversion*

## Utility-scale cost breakdowns and local content percentage vary considerably by design, technology, and exchange rates

### Solar PV Local Content Summary from Rounds 1-3 of REI4P

- Projects used **local EPC to meet** local content requirements in early rounds including locally made transformers & wiring
- A few projects sourced modules from local c-Si manufacturers (imported cells with local module assembly for Tier 2-3 products)
- Some projects used locally assembled inverters and locally made mounting hardware
  - Some standards requirements and **bankability concerns** limited wider use of local components in early Rounds

### Sample component cost breakdown for utility-scale Solar PV Fixed Axis (c-Si)

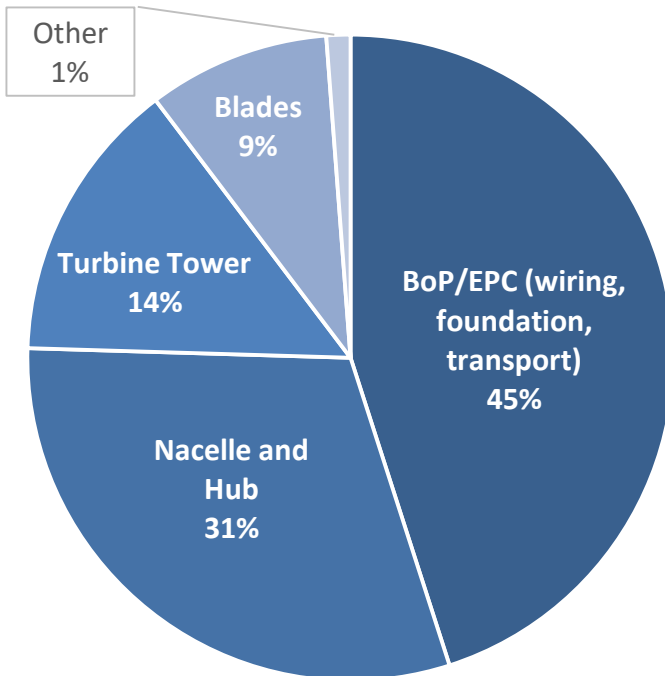


Note: Excludes development/financing costs (sample project from Round 2)

*Concerns with some Round 3 projects that allegedly imported modules below cost via a local distributor that disproportionately claims mark-up as local content. While it may be legal, this practice is not in the spirit of localization goals and sustainable value add to South Africa's economy.*

## Wind projects used local EPC and Balance of Plant (BoP) components, while recent projects also used locally made towers and anchor cages.

### Sample component cost breakdown for utility-scale wind project



*Note: Excludes development/financing costs (sample project Round 3)*

### Wind Local Content Summary from Rounds 1-3 of REI4P

- Most projects used BoP/EPC to meet local content requirements in early Rounds
- Locally made towers w/ ~80% local content were the first components localized followed by anchor cages and meteorological masts
- Potential to localize blade manufacturing exists, but demand is too low to justify investment currently
- Nacelle's are unlikely to be locally manufactured, but potential for local assembly exists

# A number of companies participated in the REI4P and opened local offices, but government delays have forced some to close or scale-back employment.

## Local Value Chain Category

- IPPs, Developers, EPCs, & O&M firms
  - Many int'l IPPs set-up offices in South Africa, but many jobs are at risk with government's wavering support for industry



- Financiers
  - Mainly local banks and DFIs provided project finance



- Solar PV module assembly (c-Si technology only)
  - Some companies closed due to lack of demand & REI4P delays



- Solar PV inverter assembly & mounting structures
  - AEG discontinued local inverter line due to REI4P delays



- Wind tower manufacturing
  - 2 steel manufacturing plants capable of making up to 780MW/yr and employ 300 people
  - 1 concrete manufacturer built towers for 1 project in Round 2



- Transformer Manufacturing & Cabling
  - Reduced demand has led to fewer jobs at these facilities



# South Africa's experience shows government procurement can significantly influence local industry, but consistency is needed

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## Lessons Learned

- **Stable demand** from gov. and local customers naturally drives localization (e.g. gov. procurement & goals, allowing bilateral PPAs, wheeling, & embedded customer gen.)
  - Delays and unpredictable government procurement can put local manufacturers out of business
- Electricity **market structure** should allow for fair access to grid by IPPs and customer generation (e.g. independent system operator)
- Ensure local content commitments **enforceable and account for exchange rate** fluctuations
- “Chicken or egg” challenge for new local companies to establish credibility and demonstrate bankability for utility-scale projects without track-record on projects
  - Consider gov. **procurement for smaller-scale projects** as well to enable local business
- Consider encouraging development of **local components with export potential** rather than just % spend
  - Components that can be made locally and exported at globally competitive prices with international certifications will help create a sustainable local industry and jobs



# THANK YOU

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