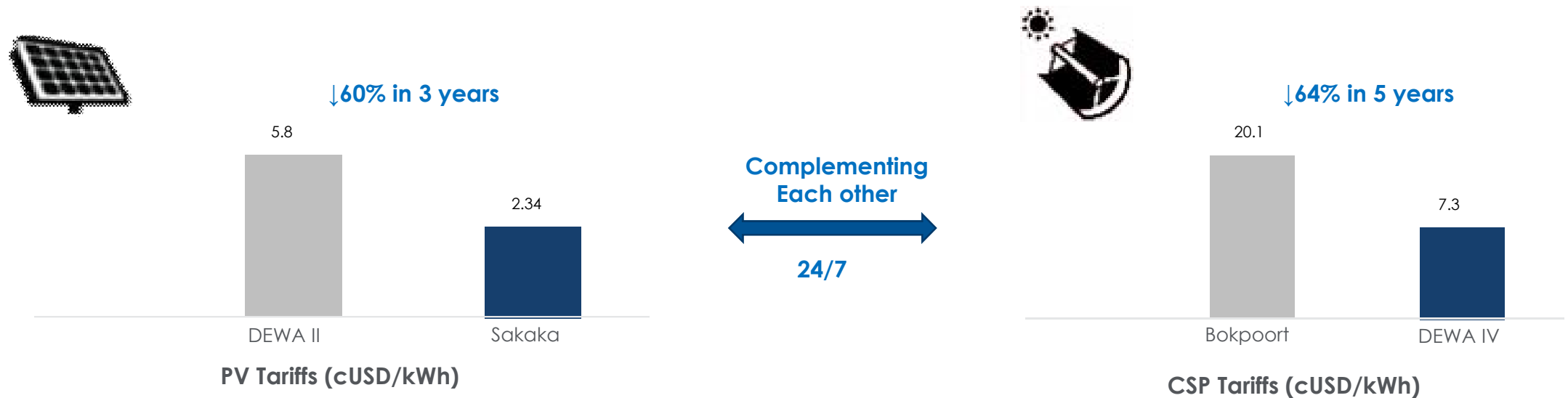


# ACWA POWER

## Webinar: 247 solar energy: Hybrid PV – CSP projects



Renewable Tariffs Drop => Transformation and complete change in the industry for Renewable use.



- Generating at time of availability of solar resources
- Variable and intermittent
- Few storage hours possible
- Low costs

- Covering intermittency issues of other renewable energies thanks to storage
- Generating at peak time + anytime required
- Similar Dispatch as conventional (base load)
- High costs



## Competitiveness of Hybrid CSP/PV solutions

- CSP today is not anymore a new technology like it was 10 years ago. It is proven, it has reached a very advanced level of competitiveness in term of pricing, its execution became more known and companies are familiar with it.
  - Previous PV and CSP projects experiences have helped in reaching the level of today's tariff
  - The latest 950MW CSP/PV project in Dubai, will boost PV & CSP technologies further (bringing improvements and lessons learnt for future projects). The more projects in the world and in different markets, the better for the technology improvement.
- Both PV and CSP equipment prices have decreased:
  - Projects size and economy of scale allowed savings in equipment, works and manpower
  - Suppliers are keen to enter the industry therefore reduce their margins to get large orders.
  - Innovative manufacturing
- Longer PPA = longer tenor and allows more revenues
- Generating cheap electricity from PV during the day coupled with CSP at peak hours and during the night brings value to the offtaker in term of:
  - Tariff competitive vs conventional technologies (gas/coal)
  - 24h dispatch from renewable resources
  - Reduction in carbon emission

### **Key elements to consider in Hybrid Projects:**

- Load profile, dispatch of energy,
- Storage strategy and energy availability to the network
- Climatic conditions
- Availability of fund, EPC & equipment
- Financing

### **30 - 35 years life of PV and CSP plants**

- Latest projects have been banked by local and international lenders having 30 to 35 years PPAs
- Enhancement on equipment durability is being implemented
- Suppliers to demonstrate durability and reliability of equipment
- Many equipment are similar to conventional power plants equipment which are operating for more than 40 years
- Law in some countries require some components to be designed for more than 20 years.



Je vous remercie Danke obrigado  
mihi koe рақмет сізге  
çox sağ ol شڪرا  
நன்றி  
謝謝 Asante  
धन्यवाद  
Terima kasih Ngiyabonga Tak  
ありがとうございました  
አመሰግናለሁ  
cảm ơn bạn  
Дзякую  
спасибо  
**Thank you**

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