

# SOLAR POWER AFRICA

## OPTIMISING SOLAR PV PERFORMANCE

David Raphael

17 February 2022

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POWER**  
EVENTS

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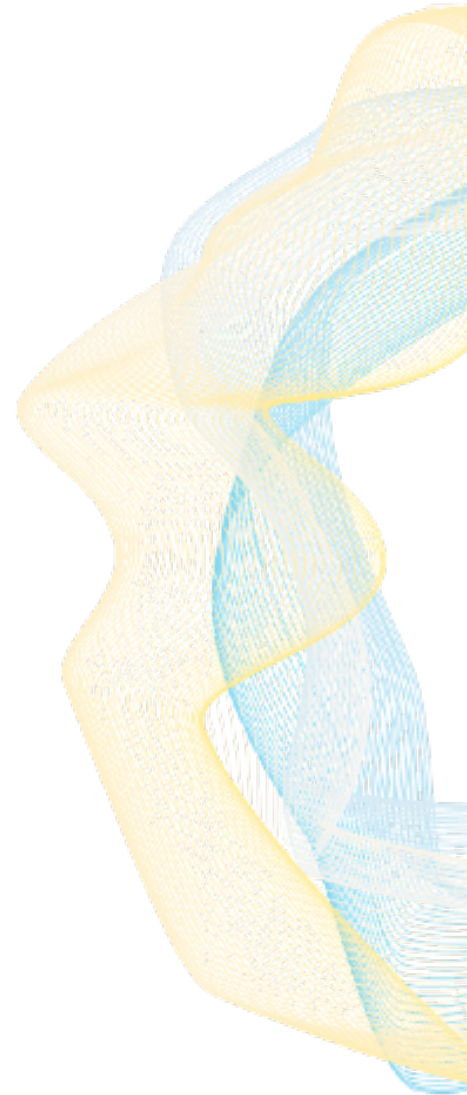
 **messe frankfurt**

01 Performance: Goals & Systems

02 Focus Areas of Performance

03 Performance in: Development, Design, Construction, Operation

04 Closing



“You do not rise to the level of your goals. You fall to the level of your systems.”

- James Clear  
Atomic Habits

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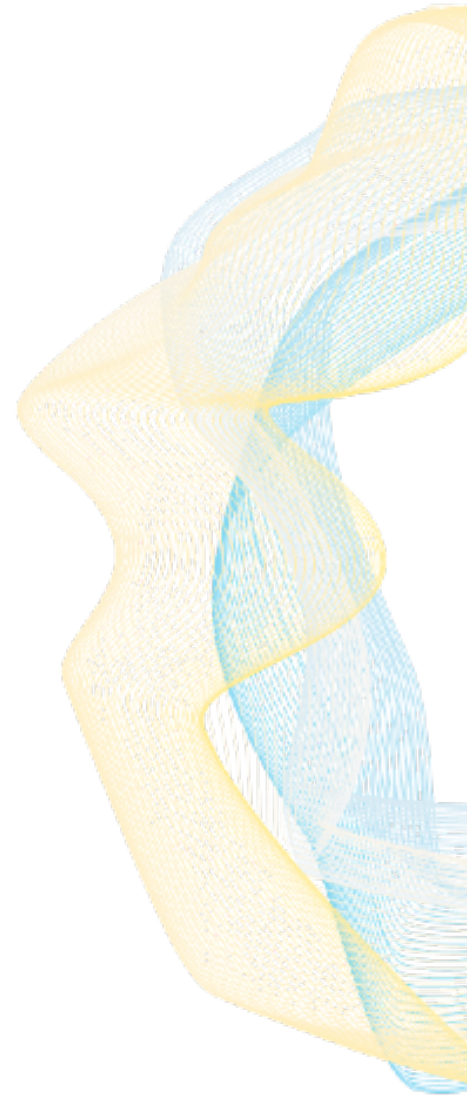
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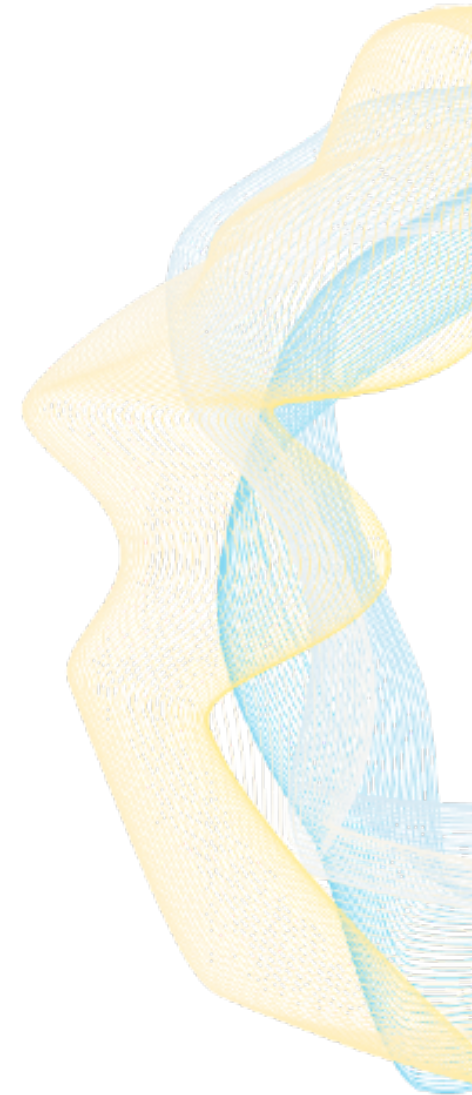
# What is performance in solar PV?

**Performance:** how *well* a person, machine, etc. *does* a piece of work or *completes* an activity

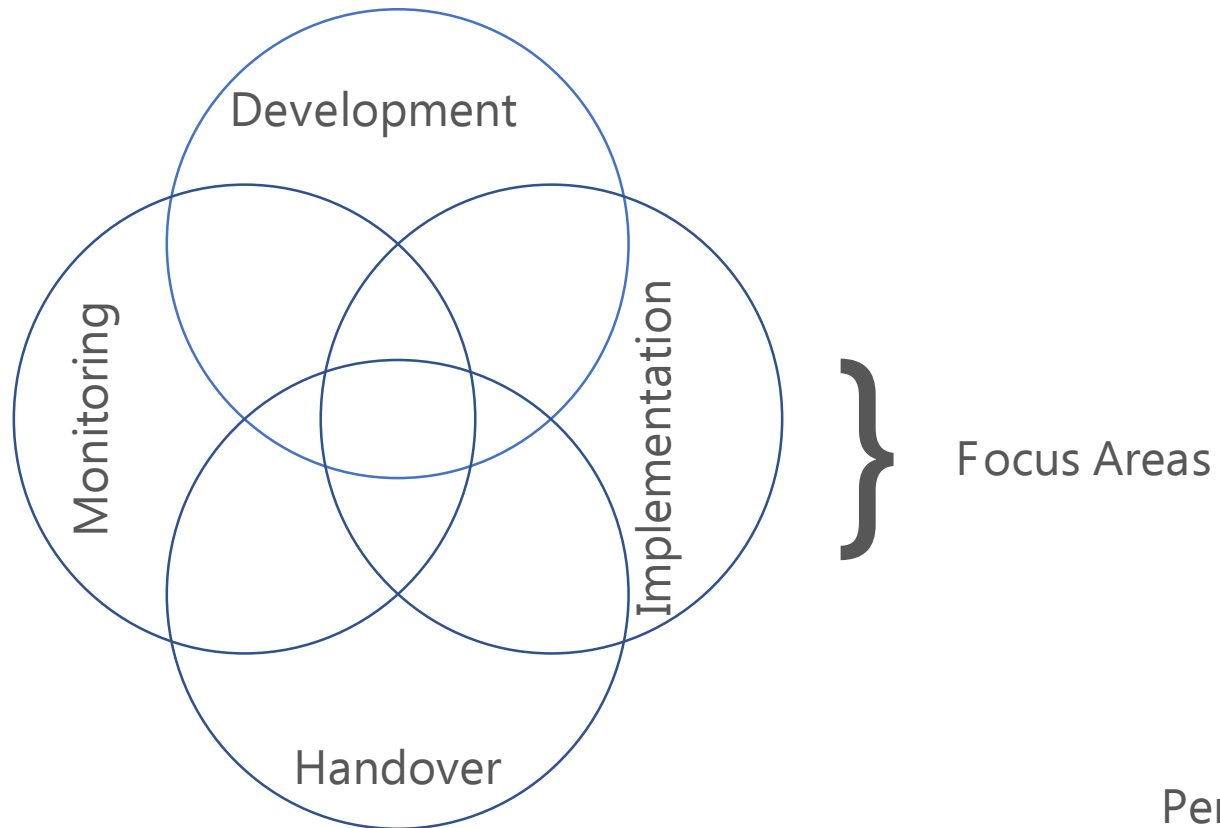
**Solar PV Performance:** How *reliably* a solar PV facility produces energy, over its lifetime

**Associated words:** Robust, Availability, Financial Return, Dependable, Consistent

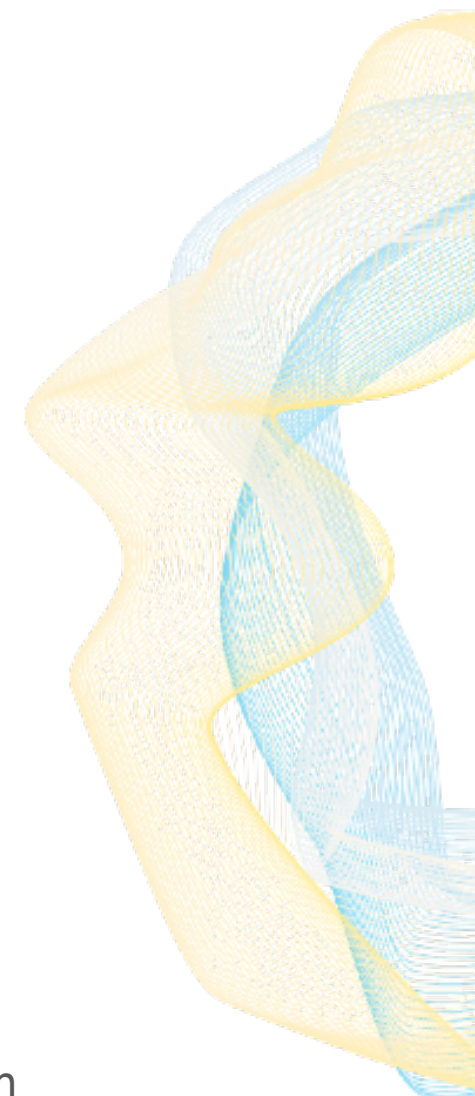
Performance, like quality, is an active process (**system**) starting at day one.



# Solar PV performance focus areas



Performance = Goal  
System of Excellence = System



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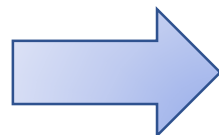
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# Performance in Development

## Primary Determinations

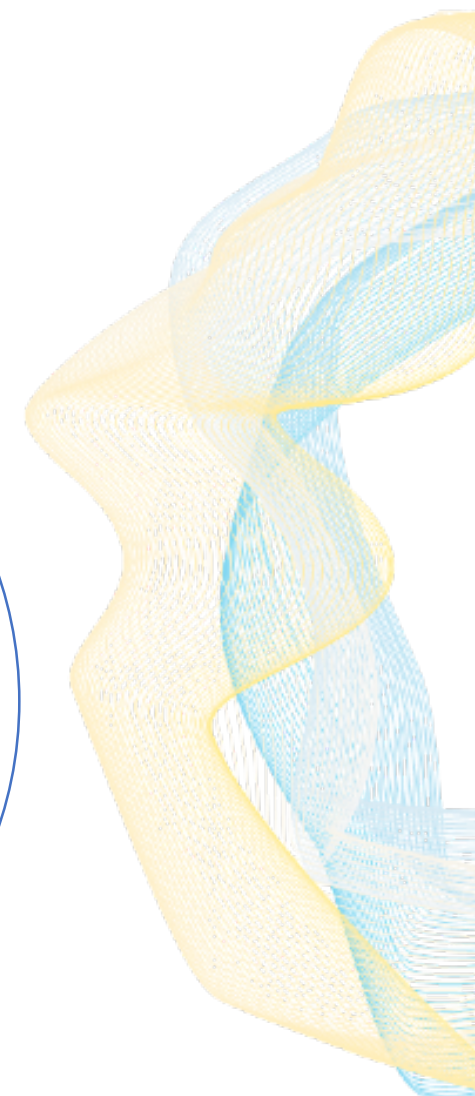
Solar Resource  
Electrical Load  
Space  
Energy Costs  
(Tariff)



## Secondary Determinations

Structural/wind  
Assessment  
Roof Corrosion  
Assessment  
LRA  
Grid Capacity

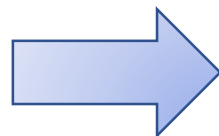
Understand the  
Parameters



# Performance in Implementation

## Design

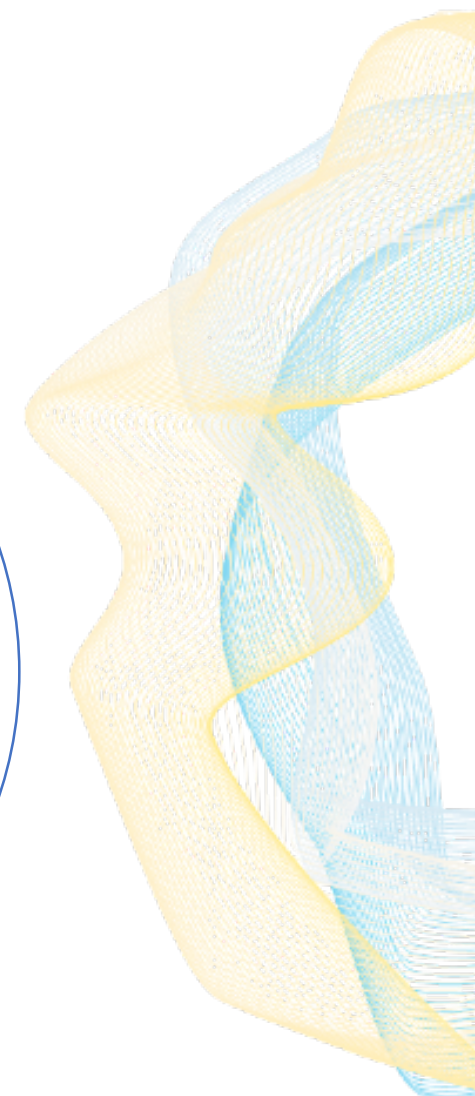
Shading  
Cable Runs  
Stringing  
Heat Dissipation  
Dust Measurement



## Construction

Access  
Maintenance  
Utilities  
Roof  
Preservation  
Gen Interface

Build for the Environment



# Performance in the Hand-over

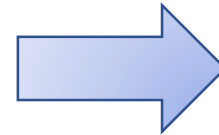
## Training

PV Basics

Safe Operating Procedure

Basic Maintenance Procedure

Tests & Checks



## Handover

As-built Documents

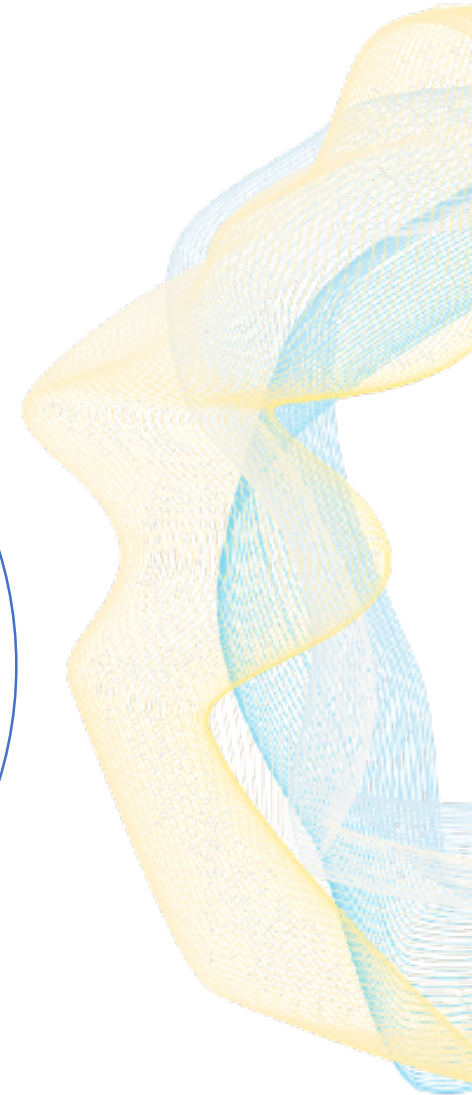
Warranties

Datasheets

Certificates/Approvals

Critical Spares list

Transfer the Competence

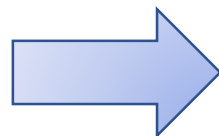




# Performance in Operations

## Monitoring

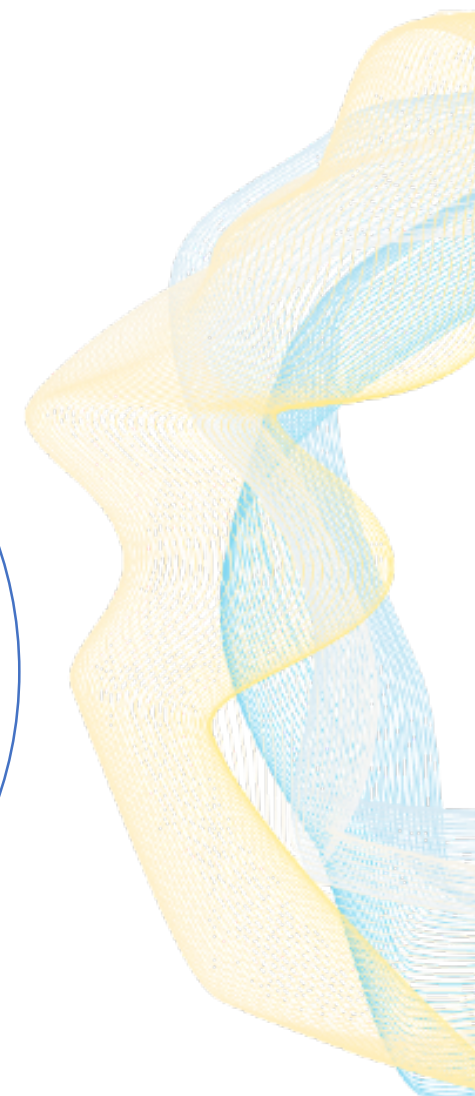
Visibility on:  
Production  
Unavailability  
Faults  
Weather



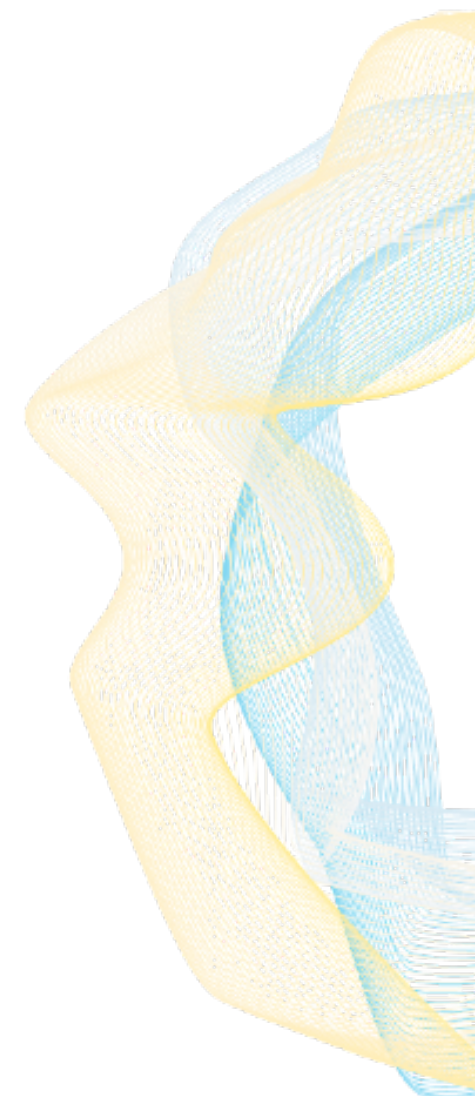
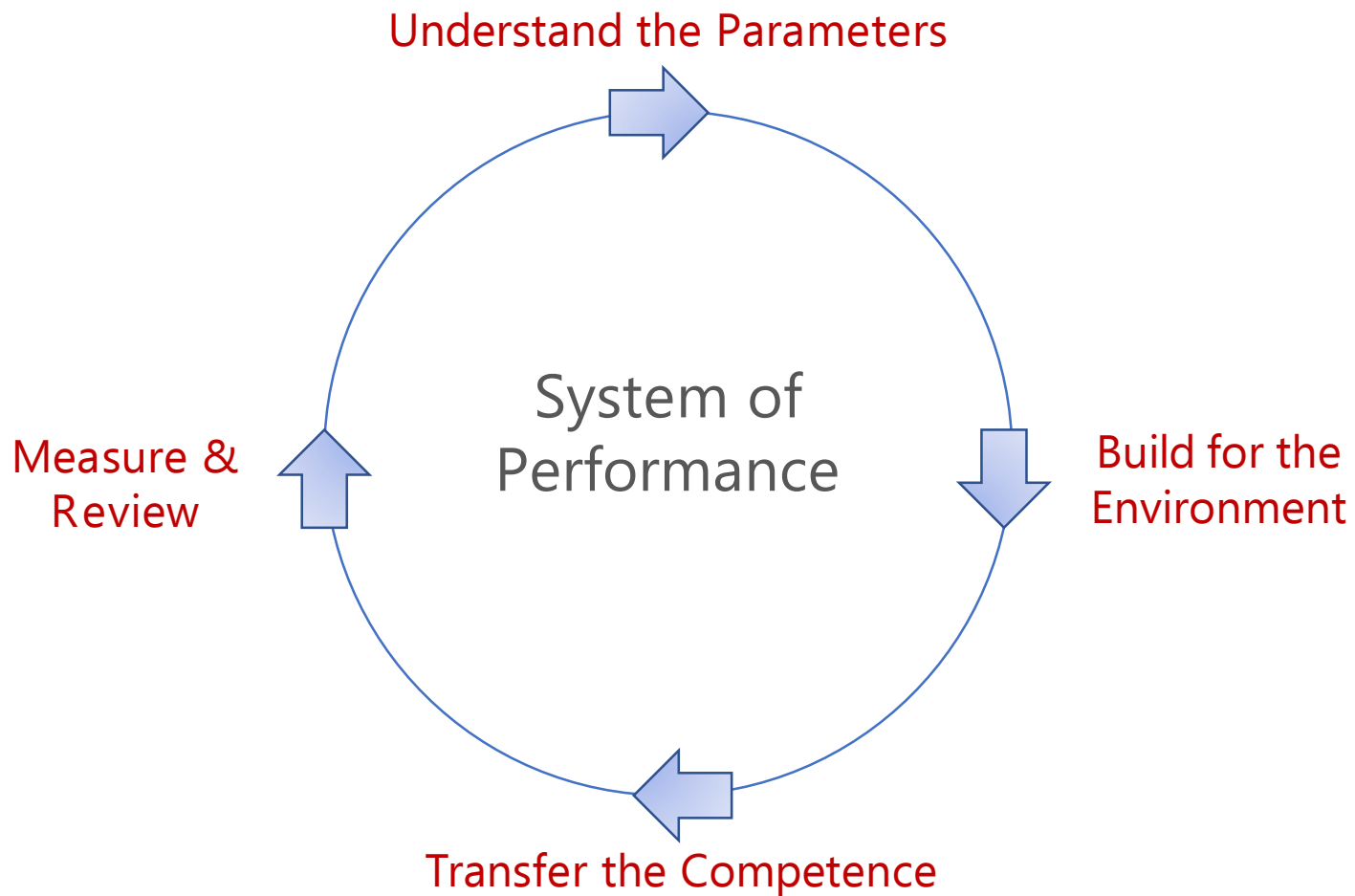
## Maintenance

Cleaning  
Mechanical/Thermal  
Monitoring  
Servicing  
Performance Guarantee

Measure &  
Review



# Performance in Summary



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# SOLAR POWER

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