Dii Toolkit Initiative

Dii Toolkit for RE Grid Integration, Project Development & Industry Localization

Fadi Maalouf
21st May 2018
## Document History

### DOCUMENT CHANGE HISTORY RECORD SHEET

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<tr>
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**Introduction**

**Dii Objectives**

**Desertec Industrial Initiative (Dii)**
was launched in 2009 as a ‘not-for-profit’ entity in Germany for exploring the potential of renewables in the desert areas of Northern Africa and the Middle East, improving market conditions and examining the synergies to be captured through connecting the European and MENA power markets.

**Dii Vision**
Increased competitiveness of renewables shall swiftly lead to economic growth and secure near 100% renewable based power supply without emission or waste.

**Our Mission: No Emissions!**
Towards a fully emission free power supply in MENA, Encourage and support the deployment of utility-scale renewable energy projects and integrating them in the expanding interconnected power systems for greater local and regional benefits.

**Dii Strategy**
Connecting the international industry active in the MENA region with authorities and institutions. Focus on practical country specific issues of renewable energy projects and grid integration in the region and interconnections across countries leading to tangible and profitable projects and other benefits to the market.
Introduction

Dii Partners

Key Promoters

ACWA Power
innogy

Associated Partners

ABB
Access
Alfanar
Al.Ghaz
Amana
EuropaGrid
First Solar
gE
KRINNER

Mauri Solaire

Navigant

IOOR

B.Electric
Cobra

ENARA ENERGY

Energy

Roland Berger

Siemens
Sterling & Wilson
Suntech

thyssenkrupp

WorleyParsons
Why Toolkit?

- In the ever-evolving energy markets, the power of information and in particular know-how, innovation, & collaboration, are key success factors.

- So What Is The Bottom Line?

- Use Top Down Analysis

- Q&A To Establish Workflow!

**Objective: Accelerate RE Implementation**

**Bottom Line**
Why Toolkit?

Q: What accelerates RE implementation?
A: Creating RE project opportunities.

Q: Who creates RE opportunities?
A: By connecting RE talent to drive innovation.

Q: What is the basis RE talent?
A: Establishing RE Knowledge Base. This is the bottom line! A solid foundation!
The Dii Toolkit “Establishes RE Knowledge Base” thus enabling talent connection, opportunity creation, & therefore renewable energy implementation acceleration.

Dii Toolkit Initiative sets a solid foundation for achieving the goal of energy independence via renewable energy, therefore accomplishing Dii Objectives.
Dii's "Toolkit for Renewable Energy Grid Integration, Project Development & Industry Localization" is derived from Dii's partners as well as Renewable Energy (RE) industry expert professionals know-how, experience, & best practices.

The objective of the Dii's Toolkit is to provide RE industry stakeholders, both private and public, with access to state-of-the-art measures & techniques (tools) which enable accelerated and smooth integration of large amounts of renewable energy into existing power grids & ensure tangible and durable benefits to the region.

Dii Toolkit scope of work includes:

- **Tools & checklist** for bankability of RE projects, system requirements for RE grid integration, operators' technical capability to manage high levels of variable RE generation, local industry & job creation & retention factors, business transparency factors.

- **Practical tips** on project development, public and private procurement and localization, thus assuring: best value for money, industry involvement, job creation, sound financing, transparency & build of trust amongst stakeholders.

- **Planning for gradual increase of RE generation** at local, national, regional and international scale.

- **Country case studies** & sharing of know-how & expertise.

- The Toolkit database will be available at Dii’s website platform, exclusively for Dii’s partners & network members.
Toolkit Approach

- Toolkit Approach to Creating Value and Knowledge Base
- WHAT TO DO vs. HOW TO DO

WHAT TO DO ?  HOW TO DO ?
Toolkit Approach

WHAT TO ?
Objective: Trip from A to B

HOW TO ?

Limited

Comprehensive View
Recent Publications

How To?

**IPP Solar PV Project Development Roadmap**

8-Phase Bankable Approach!

- **Phase 1**: Business Development
- **Phase 2**: Pre-Feasibility Study
- **Phase 3**: Feasibility Study
- **Phase 4**: Contracts & Financial Close
- **Gate 1**: Corp RM Doc 1
- **Gate 2**: Corp RM Doc 2
- **Gate 3**: Corp RM Doc 3
- **Gate 4**: Corp RM Doc 4

- **Gate 5**: Corp RM Doc 5
- **Gate 6**: Corp RM Doc 6
- **Gate 7**: Corp RM Doc 7
- **Gate 8**: Corp RM Doc 8

- **Phase 5**: Detailed Design & Permitting
- **Phase 6**: Procurement & Construction
- **Phase 7**: Testing & Acceptance
- **Phase 8**: O&M

**Pre-Feasibility Study**

LCOE Financial Model

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Fadi Maalouf
Recent Publications
How To?

Strategic Business Plan
for IPP / EPC Renewable Energy Company

Project Finance Management Plan
for Utility Scale Solar PV Power Plant
Thank You

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