



Subsolar

- Working in the solar development sector in South Africa:
lessons learned -

Presentation for Agentschap NL
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Company Background



Subsolar is a South African project development company that is focused on developing competitive solar energy projects that will fulfill the requirements of all stakeholders involved in the process. Subsolar was founded in 2010. Subsolar has over 500MW of plants under development with different partners. Subsolar partners with EPC's and IPP's who have a competitive edge and are well positioned to win allocation in the RE IPP tender.

Subsolar prides itself on delivering projects that are cost competitive whilst advancing environmental, social and economic upliftment.

Furthermore does Subsolar develop PV plants for energy intensive users, agency work for non-South African firms entering the market, and consultancy work in the field of renewable energy and financing.

Some of Subsolar's customers include:





Experience on the ground

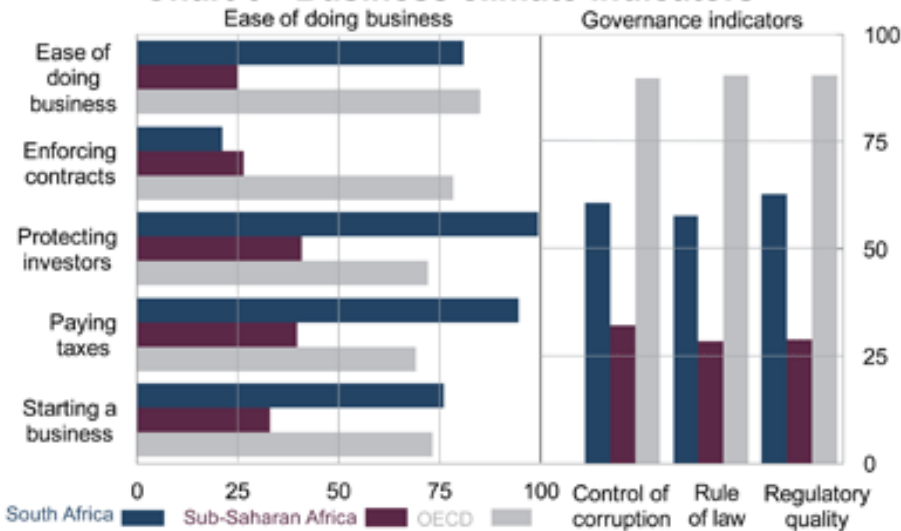


How to set up your business in South Africa?

- Department of Home Affairs
- Companies and Intellectual Properties Commission (CIPC)
- South African Revenue Service (SARS)
- South African Reserve Bank (SARB)
- South African Bureau for Standards (SABS)
- Broad Based Black Economic Empowerment (BBBEE) registration (NEF and private BEE firms)
- VAT registration
- Department of Trade and Industry
- Industrial Development Cooperation (IDC) and Development Bank for Southern Africa (DBSA)

Broad-based black economic empowerment status	Qualification	Broad-based black economic empowerment recognition level
Level one contributor	=100 points on the generic scorecard	135%
Level two contributor	=85 but <100 points on the generic scorecard	125%
Level three contributor	=75 but <85 on the generic scorecard	110%
Level four contributor	=65 but <75 on the generic scorecard	100%
Level five contributor	=55 but <65 on the generic scorecard	80%
Level six contributor	=45 but <55 on the generic scorecard	60%
Level seven contributor	=40 but <45 on the generic scorecard	50%
Level eight contributor	=30 but <40 on the generic scorecard	10%
Non compliant contributor	<30 on the generic scorecard	0%

Chart 6 - Business climate indicators*



*Country percentile rank
Source: World Bank - doing business and governance matters databases

ELEMENT	POINTS
Ownership	20
Management Control	10
Employment Equity	15
Skills Development	15
Preferential Procurement	20
Enterprise Development	15
Socio-Economic Development	5
TOTAL	100 POINTS



Experience on the ground



Country name	2011	2012	
Macedonia, FYR	22	23	
Japan	20	24	
Latvia	21	25	
United Arab Emirates	29	26	
Lithuania	26	27	
Switzerland	27	28	
Austria	28	29	
Portugal	30	30	
Netherlands	34	31	
Armenia	50	32	
Belgium	31	33	
France	32	34	
Slovenia	35	35	
Cyprus	37	36	
Chile	33	37	
Israel	36	38	
South Africa	41	39	
Qatar	40	40	
Puerto Rico	38	41	
Bahrain	39	42	
Peru	43	43	
Spain	42	44	
Colombia	44	45	
Slovak Republic	46	46	
Oman	47	47	
Mexico	53	48	
Kazakhstan	56	49	

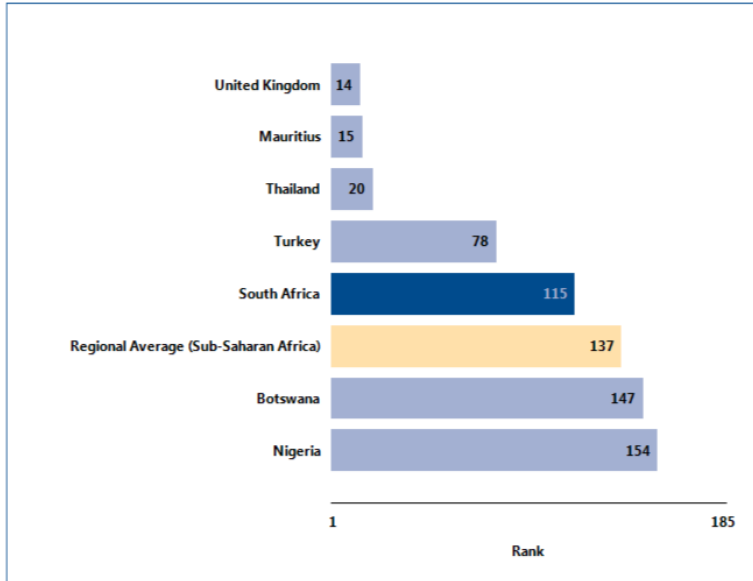
South Africa on place 39 on the Worldbank/IFC ranking on “the ease of doing business”. Reference countries:

- The Netherlands (31)
- Germany (20)
- China (91)
- India (132)
- Russia (112)
- Turkey (71)
- UAE (26)
- Nigeria (131)
- Egypt (109)
- Surinam (164)
- Brazil (130)
- Mexico (48)



Experience on the ground

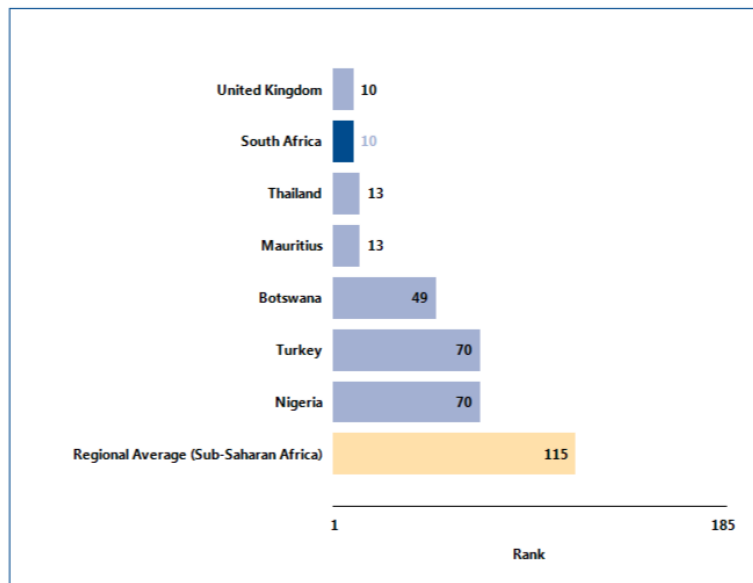
Figure 9.1 How South Africa and comparator economies rank on the ease of trading across borders



Source: Doing Business database.

General references for doing business look good, but.....

Figure 7.1 How South Africa and comparator economies rank on the strength of investor protection index



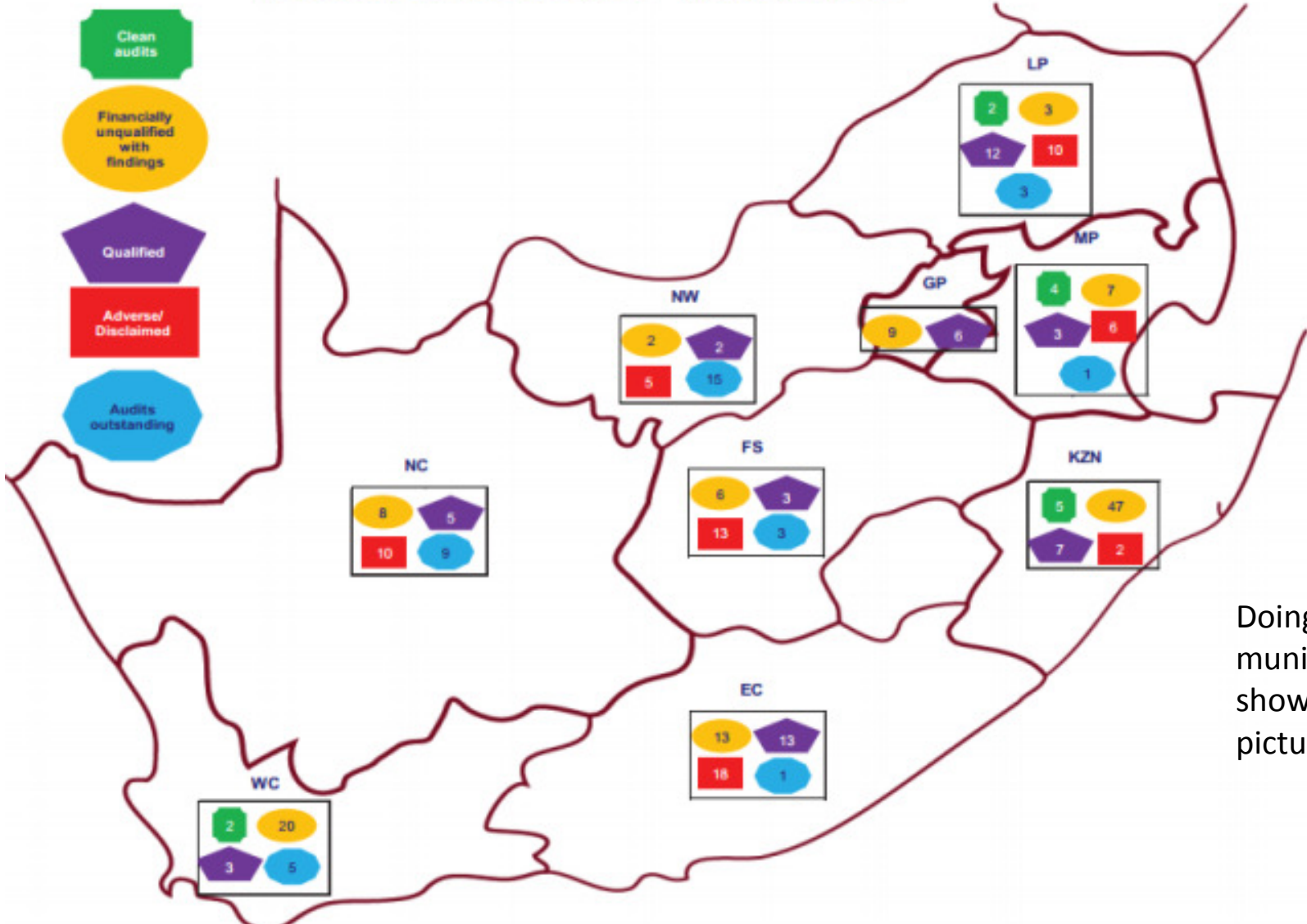
Source: Doing Business database.

TOPIC RANKINGS	DB 2013 Rank	DB 2012 Rank	Change in Rank
Starting a Business	53	43	+ -10
Dealing with Construction Permits	39	38	+ -1
Getting Electricity	150	148	+ -2
Registering Property	79	78	+ -1
Getting Credit	1	1	No change
Protecting Investors	10	10	No change
Paying Taxes	32	34	+ 2
Trading Across Borders	115	145	+ 30
Enforcing Contracts	82	83	+ 1
Resolving Insolvency	84	81	+ -3



Experience on the ground

Provincial audit outcomes – Municipalities



Doing business with municipalities might show a different picture...



Experience on the ground

One aspect of great concern for business in SA.....

Indicator	South Africa DB2013	South Africa DB2012	Best performer in Sub-Saharan Africa DB 2013	Best performer globally DB 2013
Rank	150	148	Mauritius (44)	Iceland (1)
Procedures (number)	5	5	Comoros (3)	Germany (3)*
Time (days)	226	226	Rwanda (30)	Germany (17)
Cost (% of income per capita)	1,505.8	1,651.5	Mauritius (295.1)	Japan (0.0)

...presents an opportunity in disguise



South African RE Opportunities



REIPP foresee in excess of 17GW of RE before 2030, but the real potential might be outside the REIPP program....

	Government Supported	Non Government Supported
On Grid	1. RE IPP program 8400 MW up to 2030 20 year PPA, tariff amended to inflation	3. Wheeling possibilities. Private PPA with offtakers (Anglo 50MW RFI)
Off Grid	2. Eskom own-use program for business users (Rust en Vrede Winery)	4. Pure equipment sale. No feeding back into the grid allowed. Private houses, communities, peak shaving.



1. South African RE IPP Program

Table 3. Policy-Adjusted IRP

	Committed build											New build options								Total new build	Total system capacity	Peak demand (net sent-out) forecast	Demand Side Management			
	RTS Capacity (coal)	Medupi (coal)	Kusile (coal)	Ingula (pumped storage)	DOE OCGT IPP (diesel)	Co-generation, own build	Wind	CSP	Landfill, hydro	Sere (wind)	Decommissioning	Coal (PF, FBC, Imports)	Gas CCGT (natural gas)	OCGT (diesel)	Import Hydro	Wind	Solar PV	CSP	Nuclear							
	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW
2010	380	0	0	0	0	260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	640	44535	38885	252		
2011	679	0	0	0	0	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	809	45344	39956	494		
2012	303	0	0	0	0	0	300	0	100	100	0	0	0	0	0	300	0	0	0	0	1103	46447	40995	809		
2013	101	722	0	333	1020	0	400	0	25	0	0	0	0	0	0	300	0	0	0	2901	49348	42416	1310			
2014	0	722	0	999	0	0	0	100	0	0	500	0	0	0	400	300	0	0	0	3021	52369	43436	1966			
2015	0	1444	0	0	0	0	0	100	0	0	-180	500	0	0	400	300	0	0	0	2564	54933	44865	2594			
2016	0	722	0	0	0	0	0	0	0	0	-90	0	0	0	400	300	100	0	0	1432	56365	45786	3007			
2017	0	722	1446	0	0	0	0	0	0	0	0	0	0	0	400	300	100	0	0	2968	59333	47870	3420			
2018	0	0	723	0	0	0	0	0	0	0	0	0	0	0	400	300	100	0	0	1523	60856	49516	3420			
2019	0	0	1446	0	0	0	0	0	0	0	0	250	237	0	0	400	300	100	0	2496	63352	51233	3420			
2020	0	0	723	0	0	0	0	0	0	0	0	250	237	0	0	400	300	100	0	2010	65362	52719	3420			
2021	0	0	0	0	0	0	0	0	0	0	-75	250	237	0	0	400	300	100	0	1212	66574	54326	3420			
2022	0	0	0	0	0	0	0	0	0	0	-1870	250	0	805	1143	400	300	100	0	1365	67939	55734	3420			
2023	0	0	0	0	0	0	0	0	0	0	-2280	250	0	805	1183	400	300	100	1600	2358	70297	57097	3420			
2024	0	0	0	0	0	0	0	0	0	0	-909	250	0	0	283	800	300	100	1600	2424	72721	58340	3420			
2025	0	0	0	0	0	0	0	0	0	0	-1520	250	0	805	0	1600	1000	100	1600	3835	76556	60150	3420			
2026	0	0	0	0	0	0	0	0	0	0	0	1000	0	0	0	400	500	0	1600	3500	80056	61770	3420			
2027	0	0	0	0	0	0	0	0	0	0	0	250	0	0	0	1600	500	0	0	2350	82406	63404	3420			
2028	0	0	0	0	0	0	0	0	0	0	-2850	1000	474	690	0	0	500	0	1600	1414	83820	64867	3420			
2029	0	0	0	0	0	0	0	0	0	0	-1128	250	237	805	0	0	1000	0	1600	2764	86584	66460	3420			
2030	0	0	0	0	0	0	0	0	0	0	0	1000	948	0	0	0	1000	0	0	2948	89532	67809	3420			
TOTAL	1463	4332	4338	1332	1020	390	700	200	125	100	-10902	6250	2370	3910	2609	8400	8400	1000	9600	45637						

Inclusion of biomass, biogas and landfill gas not clear (CCGT?)



1. South African RE IPP Program



	First allocation*	2013-2016	Second allocation	2017-2020
Technology	MW	Max. Tariff ZAR/Mwh	MW	Max. Tariff ZAR/Mwh
Onshore wind	1850	1150	1470	1000
CSP	200	2850	400	1650
PV	1450	2850	1075	1400
Small Hydro	75	1030	60	850
Biomass	12,5	1070	47,5	1400
Biogas	12,5	800	47,5	800

* Total allocation increased by 198,1MW for round 3. Lion share allocated to CSP and small hydro.

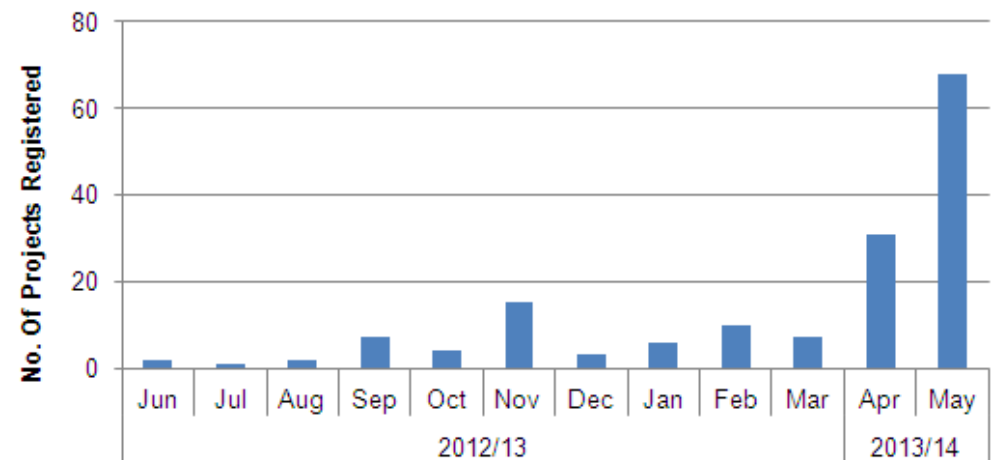


2. Eskom Subsidy Program



- Renewable energy solutions for own use
 - *“Energy that is derived from resources that are naturally regenerative or are practically inexhaustible, such as biomass waste/residue, heat (geothermal, solar, thermal gradient, ground source heat), moving water (hydro, tidal, and wave power), and wind energy, produced from zero or low carbon source technologies. For this purpose municipal solid waste will also be considered a source of renewable energy.”*
- Size of 10kwp to 1MWp, no feeding back into the grid
- Subsidy of 1,20 ZAR per KWh generated by RE for first 3 years (industrial tariffs from 0,8-1,4 ZAR/kwh)
- Payment schedule is 70% in year 0 (commissioning year), 10% each in years 1-3
- Initial size of total MW’s limited to 10MW, expanded to 20MW’s (future uncertain as Eskom funding for this program was removed from budget application to NERSA. NERSA deemed it a DoE budget-line).
- Overview so far

Project Position	Renewable Technology	Demand Savings (MW)	No. Of Projects
Contracted	Photovoltaic	0,55	4
Contracted Total		0,55	4
In Approval Process	Photovoltaic	7,05	32
	Bio Waste	2,30	6
	Hydro	0,08	2
In Approval Process Total		9,43	40
Project Submitted	Photovoltaic	14,43	92
	Bio Waste	7,62	17
	Hydro	0,02	2
	Wind	0,04	1
Project Submitted Total		22,12	112
Grand Total		32,10	156





3. Wheeling, non Government PPA

- Eskom allows for wheeling possibilities over the network
- Tight restrictions on generation license
- Little experience in the market on private PPA's
- Many different Eskom tariffs (Megaflex, Ruralflex, etc) allow for a complicated calculation of tariffs and offsets
- AngloPlatinum 50MW PV PPA RFI (first attempted PV private PPA)

In other technologies:

- Electrawinds BHP 1,8MWp wind turbine
- BMW example:
 - Location: premises of the Beefcor at Bronkhorstspuit
 - 10 year PPA between generator (Bio2Watt) and user (BMW)
 - 3 MW biogas to electricity plant (60,000 tons of biowaste/ year)
 - Electricity to be sold at ZAR 0.96/kWh
 - Wheeling agreements with ESKOM and Pretoria (40 km distance)



4. Off grid, not supported

- Competitiveness to normal tariffs in most municipalities already achieved.
- Eskom requested 16% annual increase for next 5 years. NERSA approved 8% per annum for 5 years. Eskom’s reaction :
- Reducing dependency on Eskom, some customers go all of the grid
- Competitiveness with diesel achieved
- Off-grid solutions for remote villages, mines

Tariff in ZAR/kwh/User	2013	2017
Private user NC on municipal flat rate	1,32	1,80
Ruralflex 6-10,18-20, (Jun-Aug)	3,73	5,07
Private user Pretoria (100-400kwh pm)	1,14	1,55
Large Industrial Johannesburg	0,84	1,14





Experience on the ground



Summary:

Positives:

- South Africa NEEDS more electricity (going from 45,000MWp to 90,000MWp by 2030)
- 2 Rounds of utility scale bidding have been concluded (moving up on the learning curve)
- SA has areas/potential for solar, wind, biomass, biogas and limited hydro
- Increasing electricity prices due to weak Rand and aging fleet of coal fired power stations
- Potential for cost savings at grid connected users, utility scale PPA's and off-grid solutions
- Well developed grid lines
- Access to commercial finance and development finance

Negatives:

- Focus on localization and Home Affairs policy can be a constraint
- Currency im-export restrictions and volatile currency
- Feet on the ground are essential
- Legislation for RE, outside REIPP, is still under development, and RE implementation is limited due to no net metering



It's Possible

For more information on Subsolar:

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