

d·i·e



Deutsches Institut für
Entwicklungspolitik

German Development
Institute

Managing rents for renewables in emerging countries

06/11/2012

Anna Pegels



- Why renewables in emerging countries?
- Which support instruments are available?
- Capacities and instruments: Finding the best fit
- Example South Africa

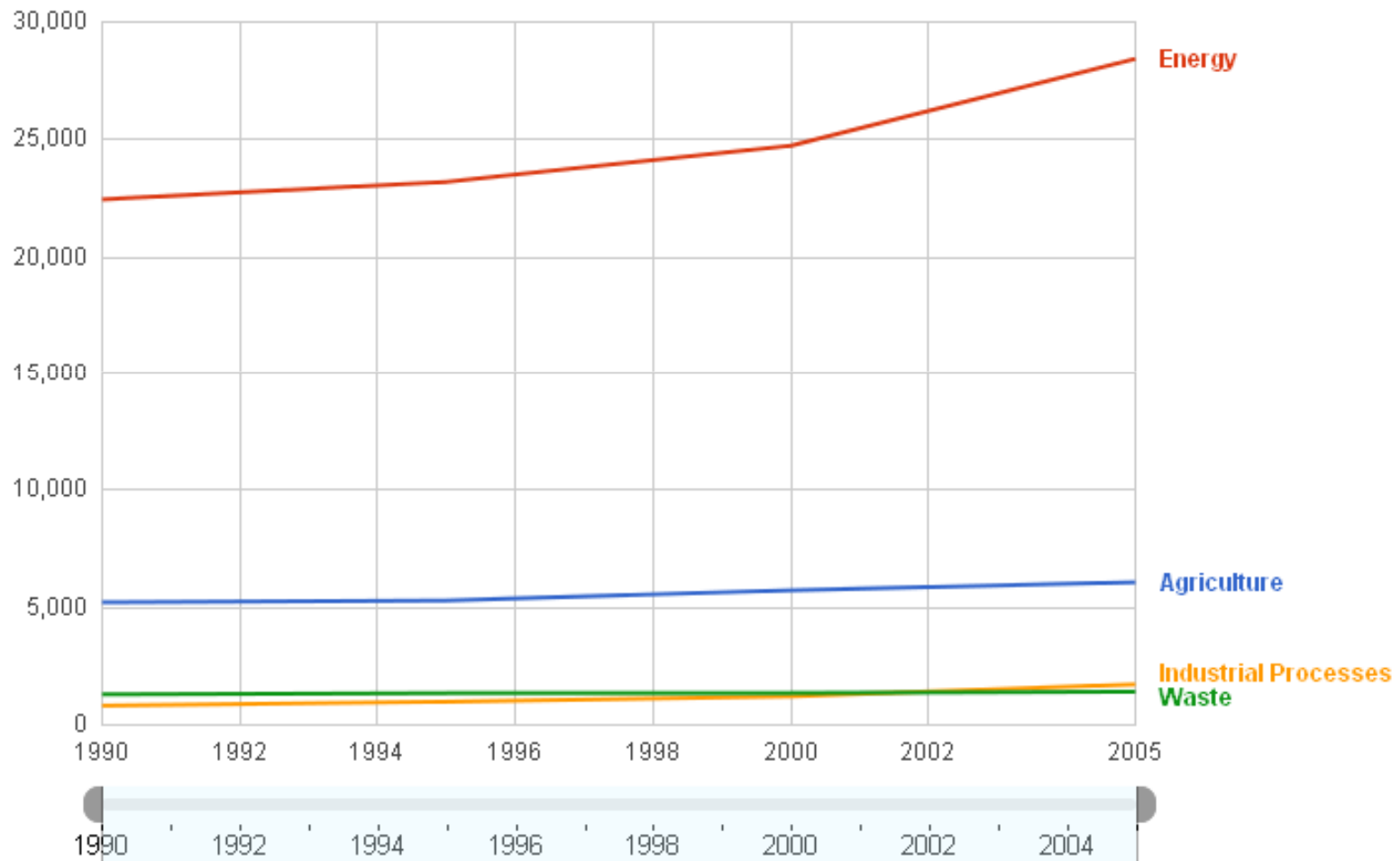


Why renewables in emerging countries?

Greenhouse gas emissions by sector

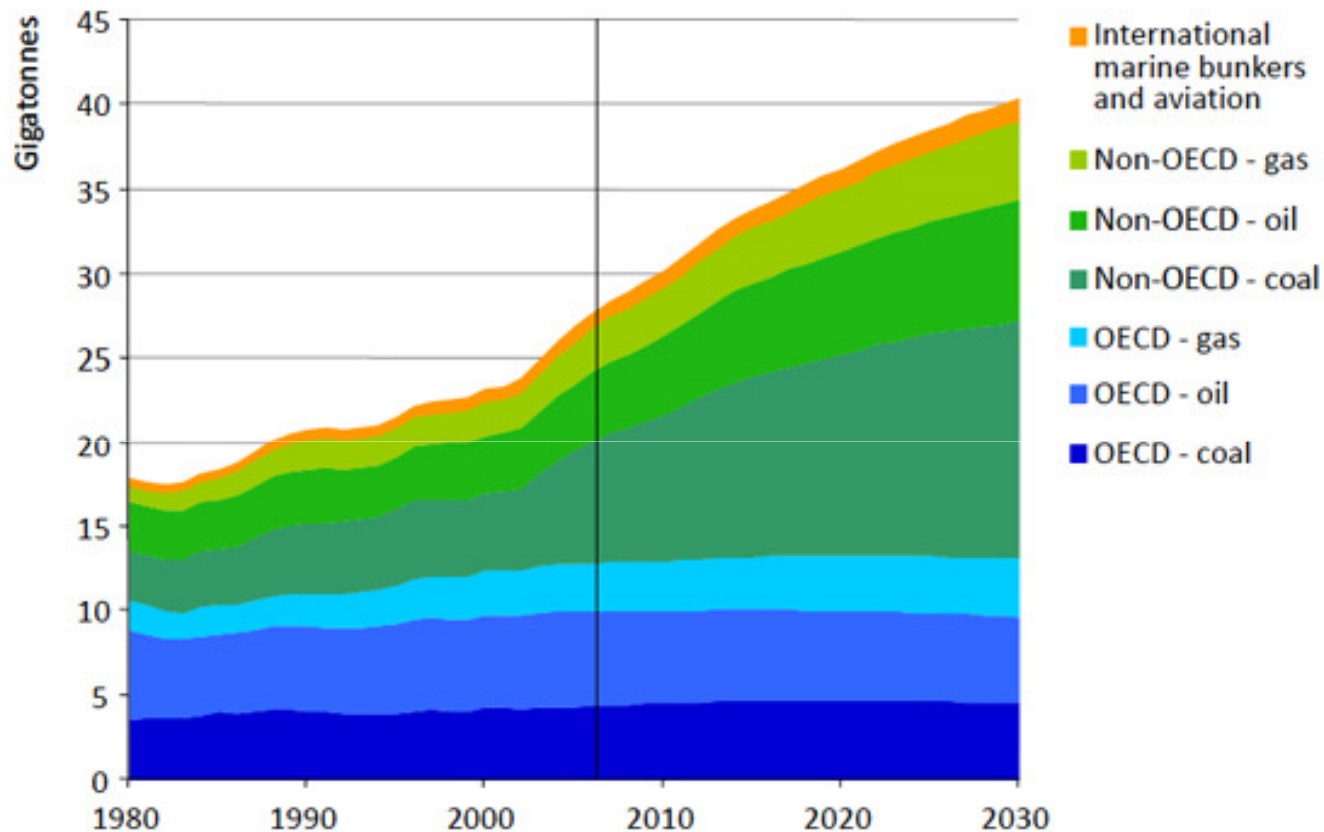


Greenhouse gas emissions Mt CO₂e



Data from [World Resources Institute](#) Last updated: Jun 15, 2011

Greenhouse gas emissions by region



97% of projected increase from non-OECD countries – 75% from China, India and Middle East (Source: IEA 2008)

Benefits beyond GHG reduction

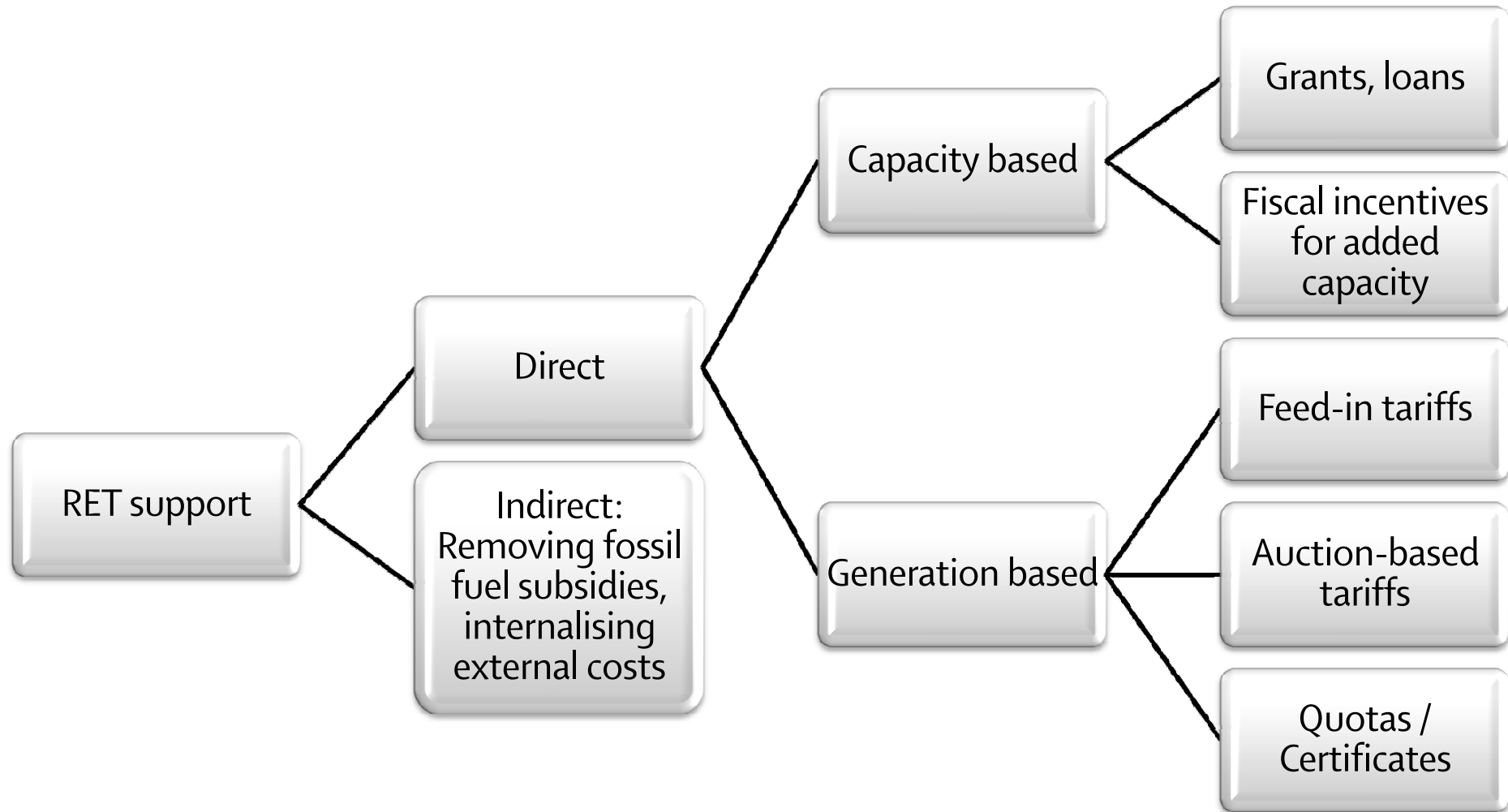


- Energy diversification, independence from imports
- Job creation
- International reputation
- Reduction of air pollution, health benefits
- ...



RET support instruments

Levelling the playing field for RETs





Finding the best fit: FITs vs ABTs

Feed-in tariff characteristics



- Generation based (payment per kWh)
- Guaranteed over period of 10-20 years
- Guaranteed grid access
- Tariff rates pre-determined
- Rate adaptation possible, but with care (unlike Spain) and predictable
- Electricity consumers pay in most schemes

Auction-based tariff characteristics



- Same as feed-in tariff, but:
- Tariff rates determined in competitive bidding process
- Quantities are set in ‚bidding windows‘
- Rate adaptation between windows through competition
- Electricity consumers pay in most schemes

Feed-in tariffs vs auction-based tariffs



	FIT	ABT
Risks / Weaknesses	<ul style="list-style-type: none"> • Setting tariffs too low – low effectiveness • Setting tariffs too high – low efficiency, high policy costs 	<ul style="list-style-type: none"> • Adventurous bidding – low effectiveness • Risk of stop-and-go investment cycles • Biased towards larger firms
Strengths	<ul style="list-style-type: none"> • Constantly available support creates stable investment climate, continuous investment flow • Proven effectiveness in many countries, often seen as ‚best practice‘ • Higher investment security → lower risk premiums 	<ul style="list-style-type: none"> • Lower risk of excessive policy costs • Better suited for trial and error • Can be easier to communicate than FIT → in countries with high cost pressure second best can be better than nothing

Feed-in tariffs vs auction-based tariffs



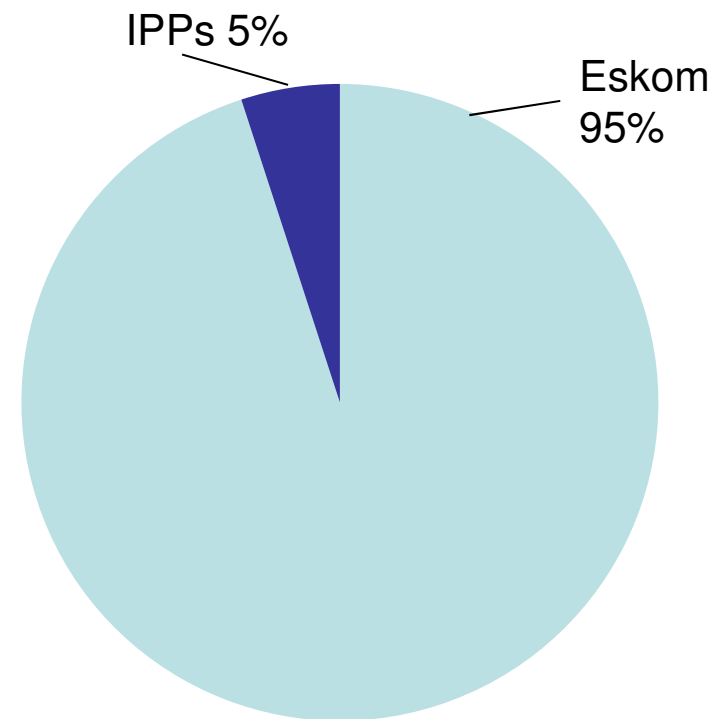
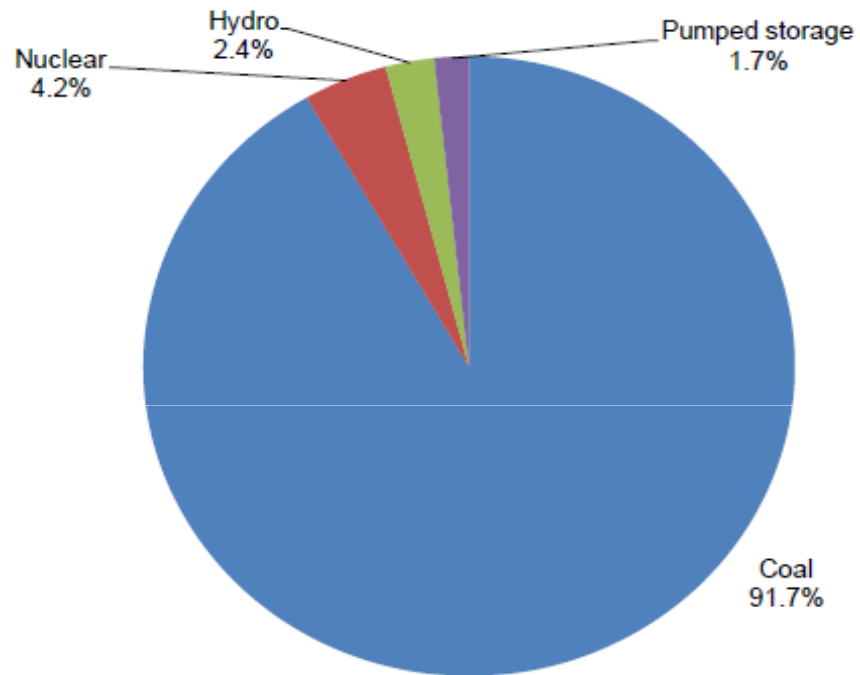
Requirements and capacities	FIT	ABT
Independent, accurate information	Good market knowledge required to get tariffs right	Competition forces suppliers to reveal cost information
Meritocracy, checks & balances	<ul style="list-style-type: none"> • Fixing the tariffs without competitive process: rent-seeking risk • Incentives to lobby for exclusion of competitors (local content) 	Incentives to lobby for exclusion of competitors (local content)
Policy learning	Possible over time, but risks loss of trust	Policy learning possible through bidding windows
Technical capacities	Once set up relatively easy to manage	Experience with bidding processes required

→ Sequencing over time is possible



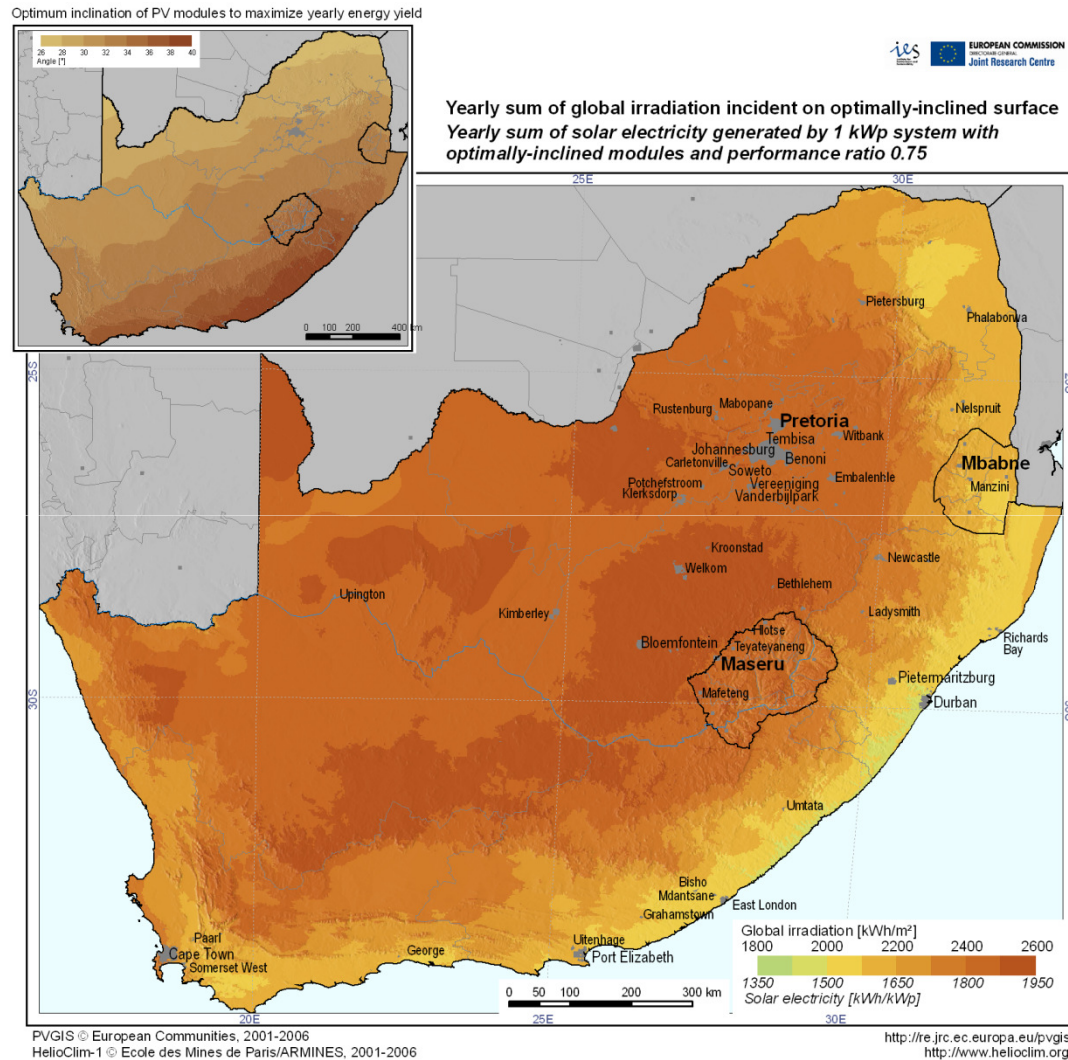
Case Study: South Africa

Electricity sector South Africa



Sources: DoE 2010, 2012

Renewable energy resource base: solar



Source: Huld et al. (2005)

Support: planning (IRP 2010)



- ~17,800 MW renewables until 2030,
wind and solar PV: 8400 MW each, CSP 1000 MW.

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		
	RFS Capacity (coal)	Medupi (coal)	Kusile (coal)	Ingula (pumped storage)	DOE OCGT IP P (diesel)	Co-generation, own build	Wind	CSP	Landfill, hydro	Sere (wind)	Decommissioning	Coal (PF, FBC, imports)	Gas CCGT (natural gas)	CCGT (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
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	0	2901	49348	42416	1310	
2014	0	722	0	999	0	0	0	100	0	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	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	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	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	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	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	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	0	1212	66574	54326	3420	
2022	0	0	0	0	0	0	0	0	0	0	-1870	250	237	0	805	1143	400	300	100	0	1365	67939	55734	3420	
2023	0	0	0	0	0	0	0	0	0	0	-2280	250	237	0	805	1183	400	300	100	1600	2358	70297	57097	3420	
2024	0	0	0	0	0	0	0	0	0	0	-909	250	237	0	283	800	300	100	1600	0	2424	72721	58340	3420	
2025	0	0	0	0	0	0	0	0	0	0	-1520	250	237	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	0	3500	80056	61770	3420	
2027	0	0	0	0	0	0	0	0	0	0	0	250	0	0	0	1600	500	0	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	0	1414	83820	64867	3420	
2029	0	0	0	0	0	0	0	0	0	0	-1128	250	237	805	0	0	1000	0	1600	0	2764	86584	66460	3420	
2030	0	0	0	0	0	0	0	0	0	0	0	1000	948	0	0	0	1000	0	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	0	45637				

Support: from FIT to ABT



- Renewable energy feed-in tariff (2009):
 - Initiative of energy regulator (NERSA)
 - Emulated 'German model'
 - Fixed feed-in rates for several RE technologies
 - Rates very low at first, very attractive after public hearings
- 2 years stalemate and confusion:
 - IPPs waiting for standardised PPAs
 - Conflicting messages from government departments / NERSA
 - Drastic reduction of rates in early 2011
 - Conversion to auction-based tariffs mid 2011

Why the FIT failed, and the ABT's success is likely



- Societal preferences
 - Poverty reduction, job creation priority
 - High pressure on electricity prices
 - Limited willingness to pay for RE
- Interests of powerful players
 - Treasury vs NERSA
 - EIUG
 - DoE?
- Matching requirements and capacities

Matching requirements and capacities



Requirements and capacities	FIT	ABT
Independent, accurate information	Good market knowledge required to get tariffs right	Competition forces suppliers to reveal cost information
Meritocracy, checks & balances	Fixing the tariffs without competitive process: rent-seeking risk	Incentives to lobby for exclusion of competitors (local content)
Policy learning	Possible over time, but risks loss of trust	Policy learning possible through bidding windows
Technical capacities	Once set up relatively easy to manage	Experience with bidding processes required



Conclusions



- While policy learning and experimentation are important, not everything should be trial & error
- Instruments can be chosen to match capacities, blueprints have their hazards
- Rent management and technical implementation capacities are relevant
- South Africa's switch to ABTs was successful (signing of first contracts yesterday)
- Policy learning process was not planned from outset, but adopted with ABT implementation



„Of course I would have preferred a feed-in tariff, but at least now we can get going.“



Thank you

anna.pegels@die-gdi.de