

MYPD workshop

- MYPD3 prep for NERSA
- 10th January 2013

How does NERSA make decisions?

efficiency

- Incentives to minimise costs under Eskom's control
- Encourage it to reduce costs not under its control



Energy mix

- Most appropriate in best interests of customer and Eskom
- Gas – last resort but load shed rather than use gas
- Water treatment, coal handling (wet coal) included
- Road maintenance through tolls.
- PPA related costs – contracts, etc
- Taxes – eg carbon tax
- Levies – environmental levy, municipal surcharge



Passing through to who?

- Whatever costs are incurred by Eskom or municipalities can be recovered from customers:
- Is there an incentive to reduce costs?
- Can customers go anywhere else?
- Does this lead to increasing or decreasing costs?



Governance issues

- Time to comment
- Density of information
- Some reports not included

Table 55: Components of revenue requirement for MYPD 3

	2013/14	2014/15	2015/16	2016/17	2017/18	MYPD 3
Generation primary energy						
Coal burn costs (Rm)	37 010	41 966	47 282	52 351	57 703	236 312
Coal handling	1 087	1 163	1 246	1 356	1 510	6 362
Water	2 082	2 414	2 615	2 750	2 955	12 816
Open cycle gas turbines (OCGT)	3 592	3 258	1 788	1 898	2 056	12 592
Nuclear	471	471	678	767	856	3 242
Other primary energy costs	2 348	2 070	1 932	1 901	2 197	10 449
Environmental levy (Rm)	8 842	9 037	9 324	9 490	9 746	46 439
Total Generation primary energy (Rm)	55 433	60 380	64 865	70 512	77 022	328 212
Independent power producers						
Department of Energy - renewable IPPs (Rm)	1 428	8 987	13 879	16 249	17 353	57 895
Department of Energy - peaking IPPs (Rm)	1 001	2 841	3 147	3 160	3 191	13 340
Short term IPPs, MTPPP (Rm)	2 760	1 473	1 017	735	498	6 483
Total IPPs (Rm)	5 189	13 302	18 043	20 143	21 042	77 719
IPPs (GWh)	4 152	6 214	8 233	9 015	9 071	36 686
Average cost for IPPs (c/kWh)	125	214	219	223	232	212
Other primary energy purchases						
Distribution IPPs	8	9	9	10		36
Demand market participation (Rm)	3 275	1 973	1 972	1 835	2 001	11 056
Imports purchases (Rm)	3 611	3 006	2 810	2 973	3 243	15 644
Other primary energy purchases (Rm)	6 894	4 988	4 792	4 818	5 244	26 737
Total Eskom primary energy (Rm)	67 517	78 669	87 699	95 474	103 308	432 667

2013/14 Avg price 67c/kWh Coal = 67% of total energy costs

2017/18 Avg price 96c/kWh Coal = 74% of total costs

Technology	Avg price window 1	Avg price window 2
Solar PV	R2.75 /kWh	R1.65 /kWh
CSP	R2.68 kWh	R2.51 /kWh
Wind	R1.14 /kWh	89c /kWh

– it is about 5 times more expensive to supply additional electricity generation as it is to save

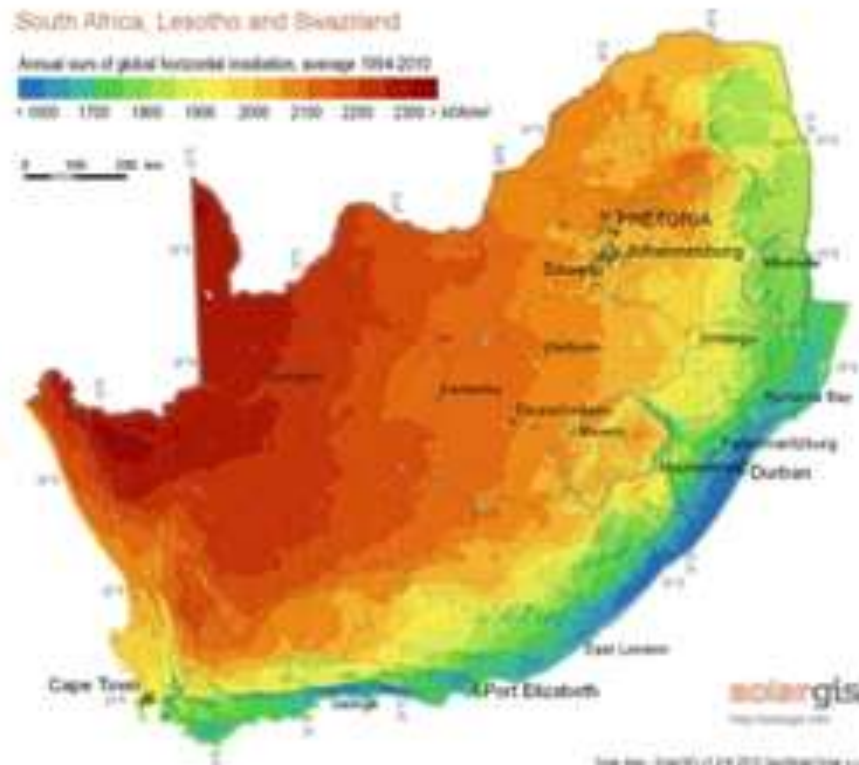
Medupi and Kusile cost of capital:

Eskom is seeking R355-billion to pay for primary energy, mainly coal, R270-billion for operating costs, including salaries, and returns of R187-billion, which will include **R140-billion** to service debt.

Finance charges R25bn and R40bn - levelised cost of Medupi 97c/kWh

Smart Supply

Electricity
Governance
Initiative of SA



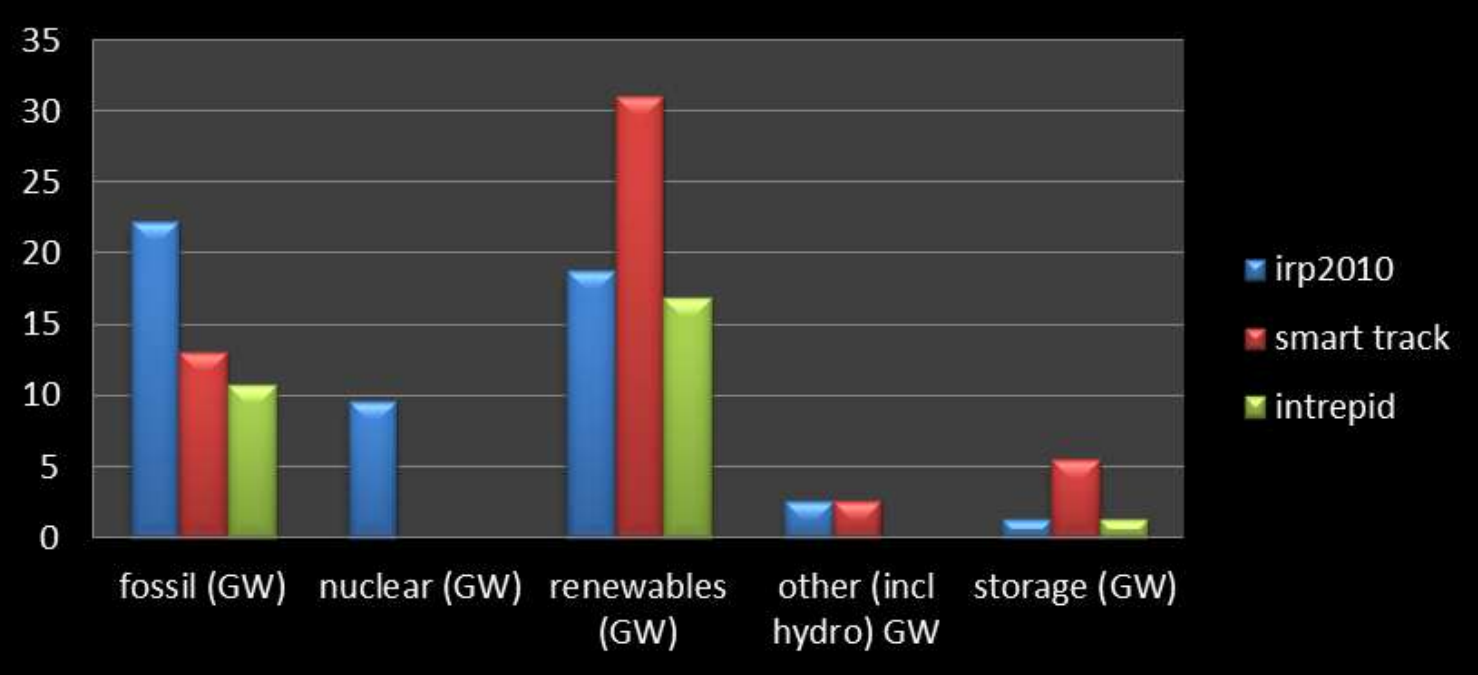
Our total coal reserve
is only equal to 15%
of the solar reserve
that is available to us
every year

SMART ELECTRICITY

Planning and building a modern infrastructure for South Africa

SMART Intrepid electricity

Generation mix summary



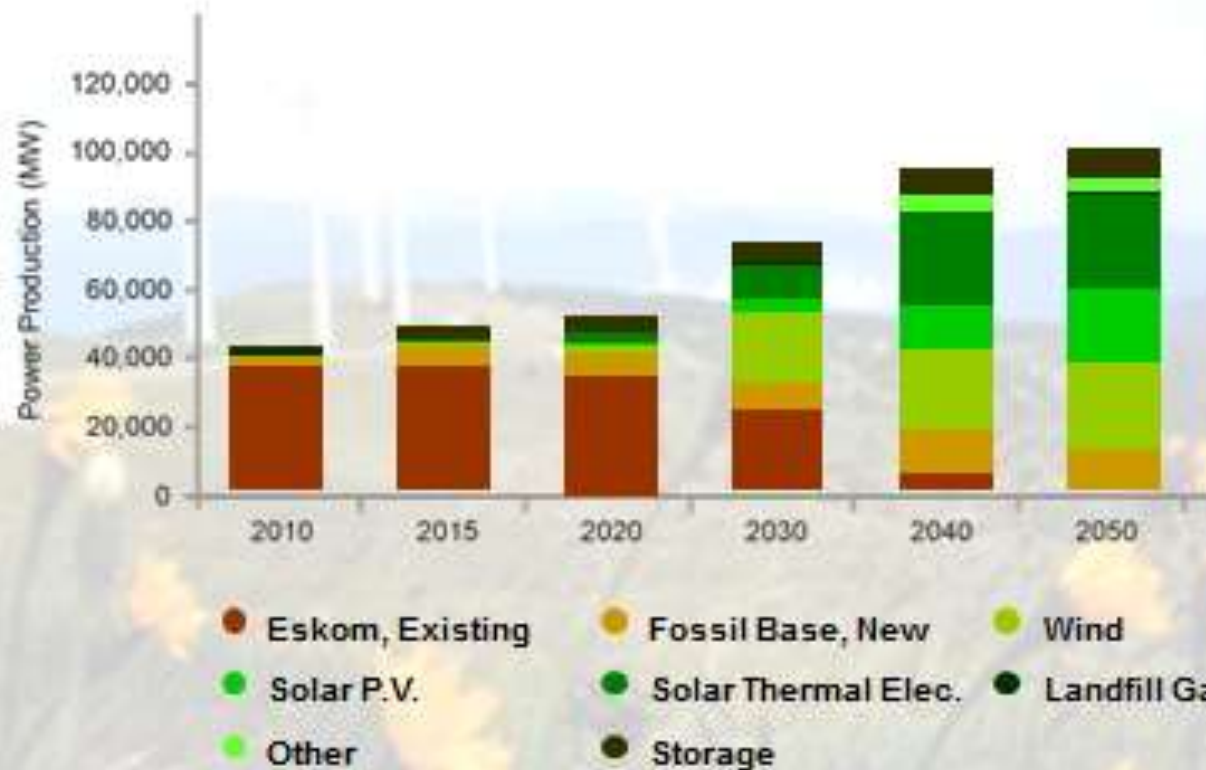
The investment for the intrepid scenario is R395 billion, a 56% reduction in investment when compared with the IRP2010.

	IRP2010	SO Mod conservative efficiency	SO low with best practice efficiency
Savings achieved by 2030	3.4 GW	10.83 GW	25.95 GW
Peak demand after savings in 2030	67.81 GW	56.98 GW	41.86 GW
Reserve margin	13%	27%	74%
Percentage over supply (with 15% as standard)	-2%	12%	59%

How much can renewables provide?

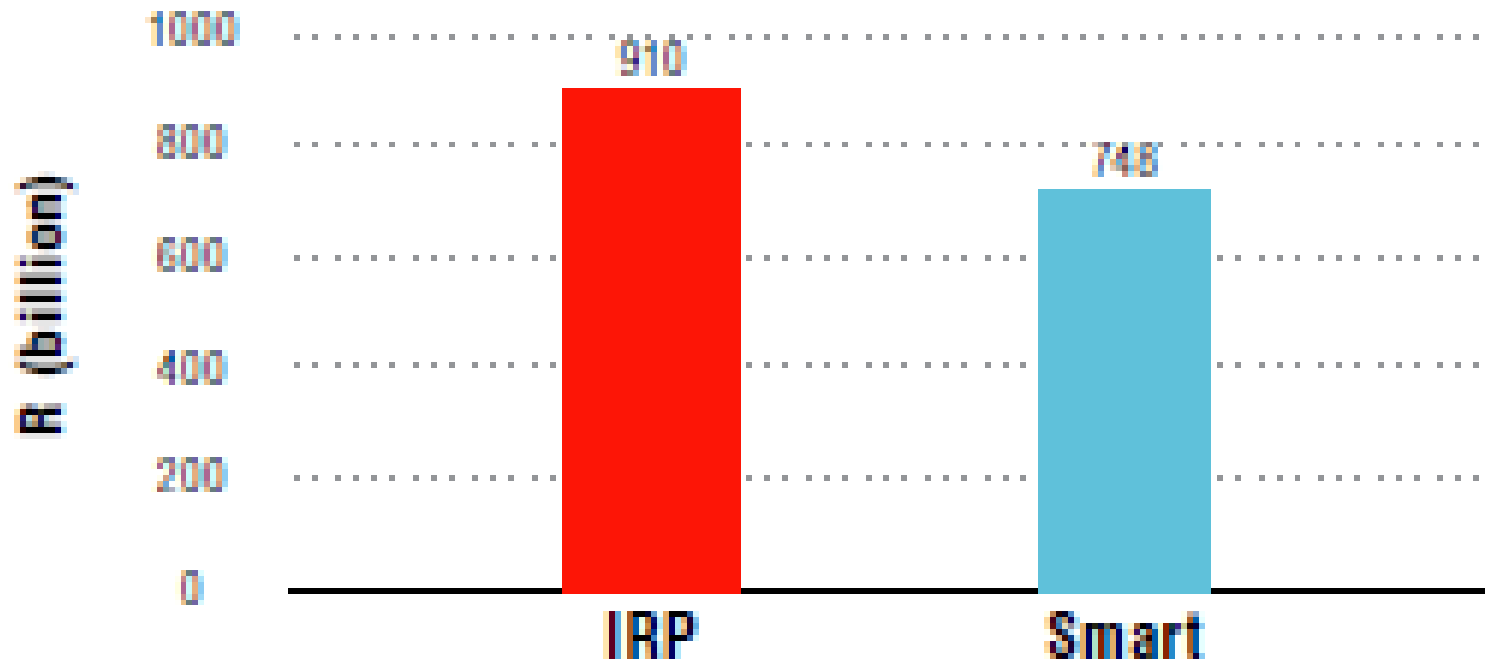
BAU - R 1 277 billion
RE path - R 1 075 billion

Energy Potential in South Africa



Capital expenditure

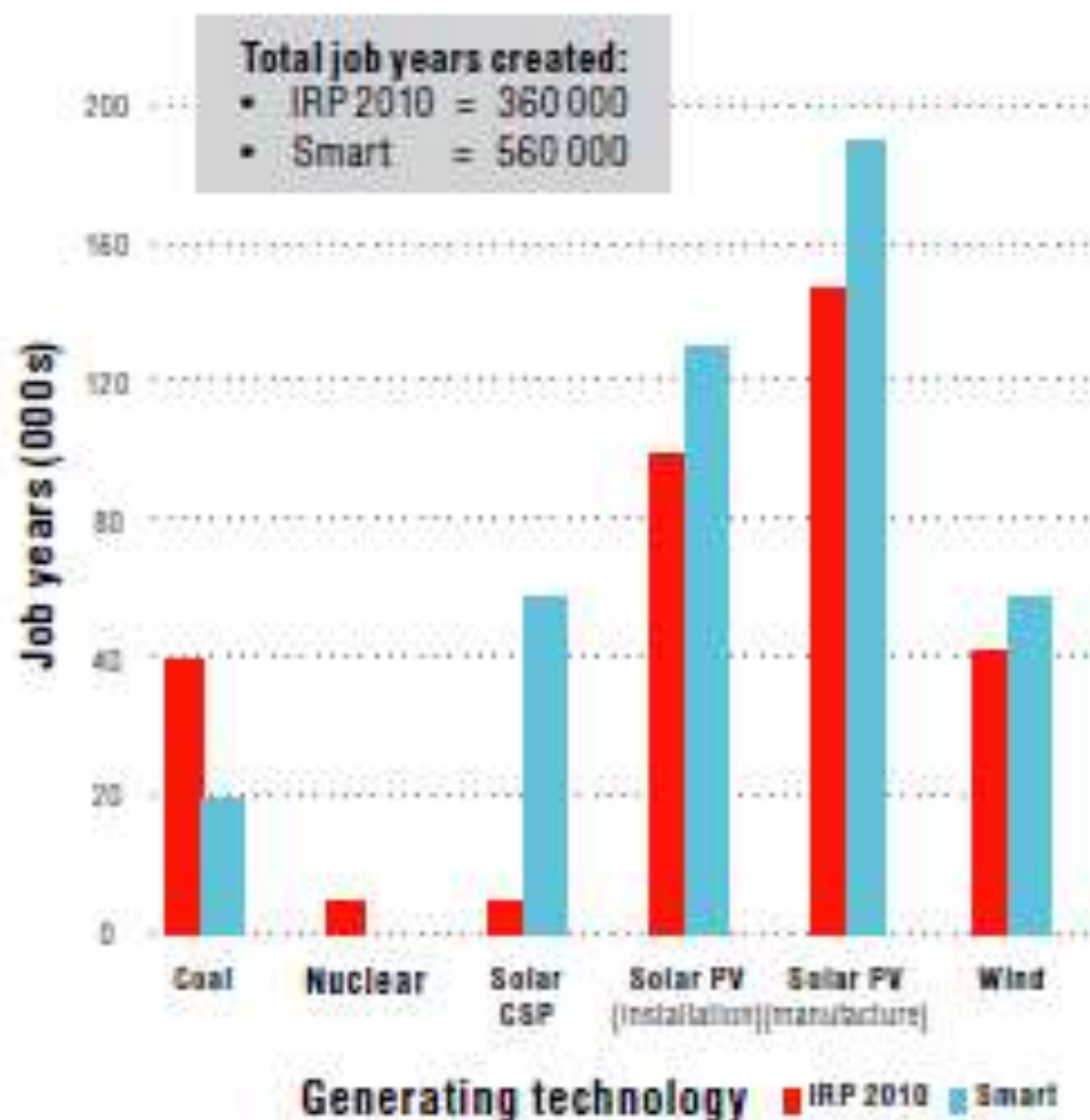
Smart plan saves about 18%



Based on 2010 costs

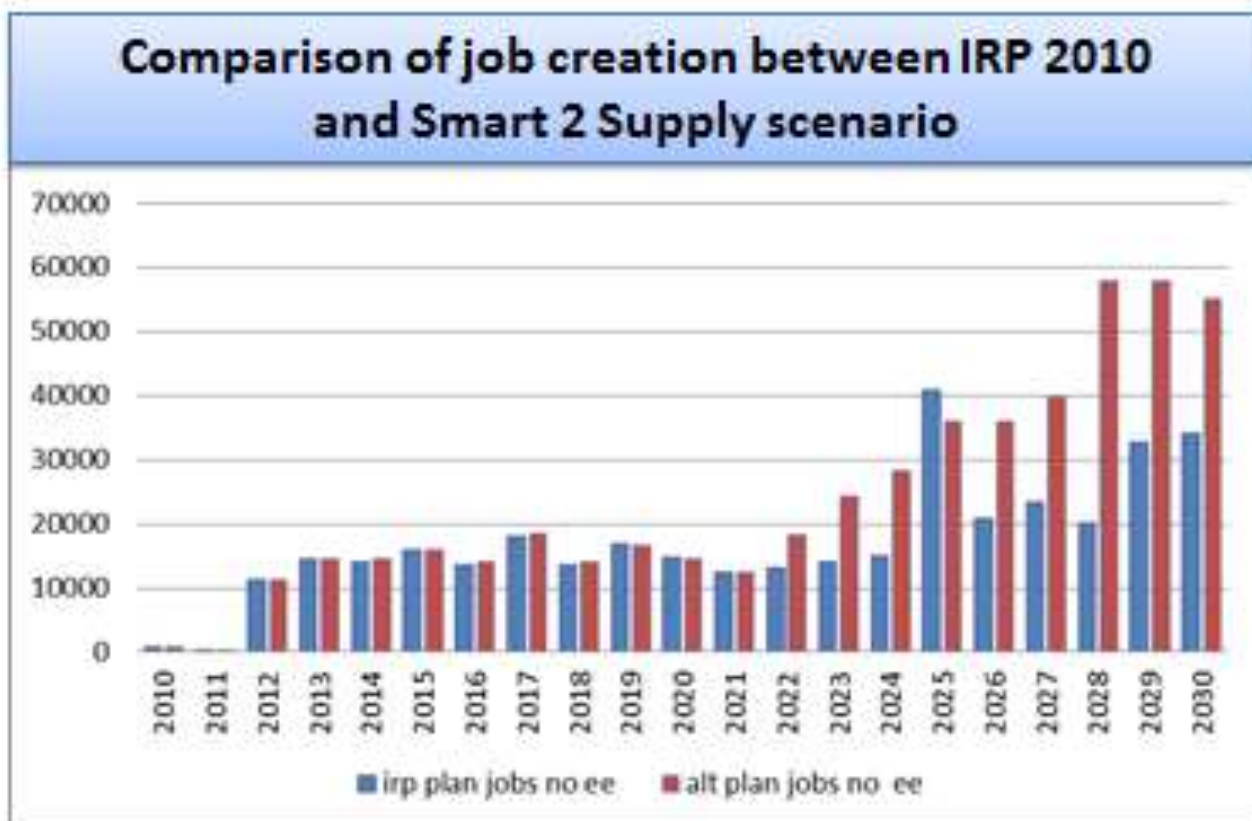
Jobs created

Smart Electricity plan creates 200 000 more job years



Smart Jobs

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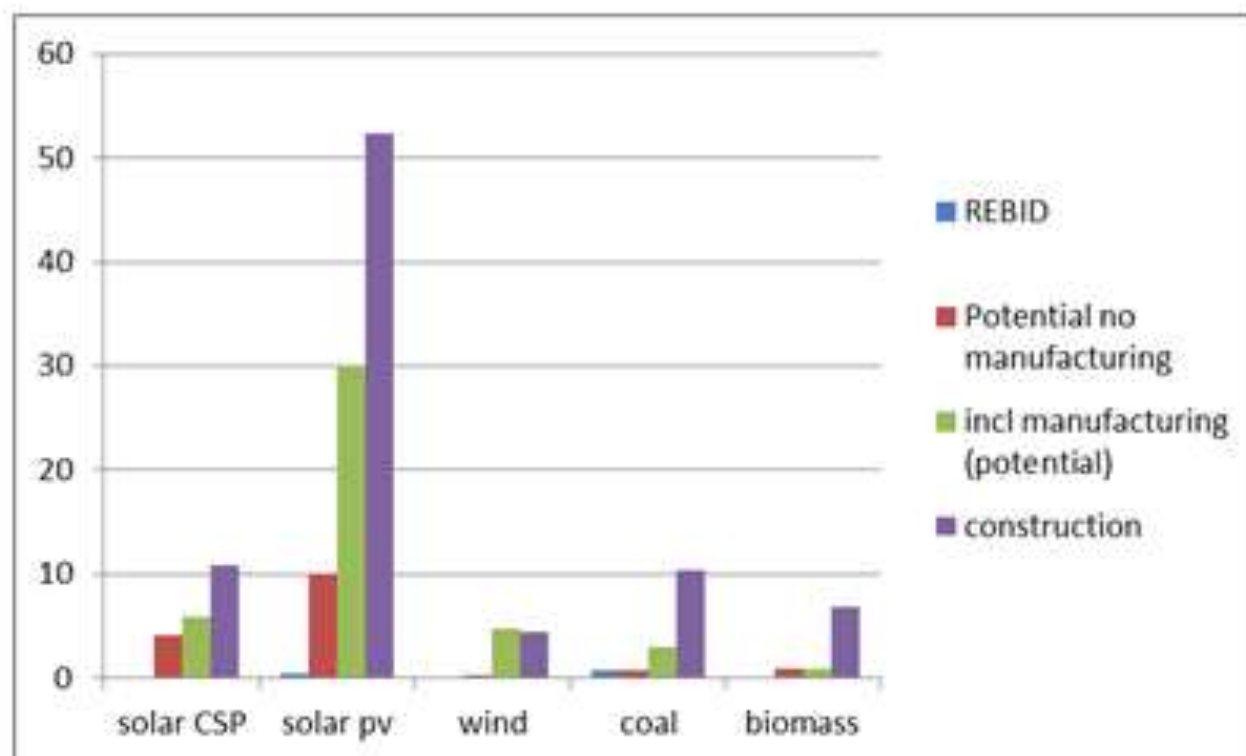


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Smart Jobs

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MYPD3

Socio-economic implications

Energy security

- **Energy insecurity:**
- The International Energy Agency (IEA) defines energy supply to be “secure” if it is adequate, affordable and reliable. Consumers expect the lights to always come on at the flick of a switch, their buildings to be maintained at a comfortable temperature all year round... On the other hand, the IEA defines energy insecurity as **“the loss of economic welfare that may occur as a result of a change in the price and availability of energy”** .

Figure 1: Year-on-year price increases per customer category for the MYPD period (including structural changes)

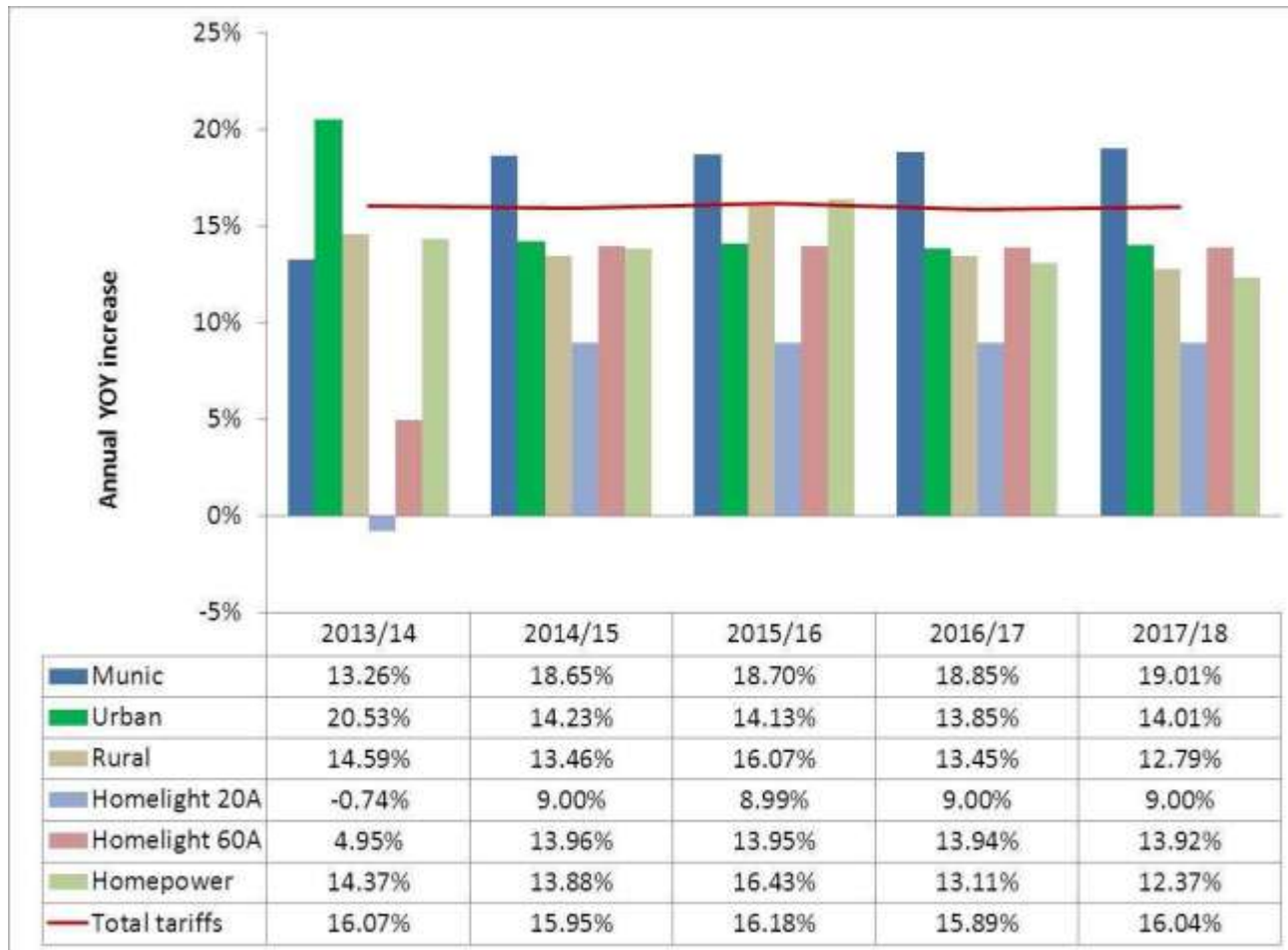


Table 47: Homepower 2012/13

Homepower tariffs

	Energy charge [c/kWh]		Service & admin charge [c/kWh]		Network demand charge [c/kWh]		Network access charge [R/POD/day]	
		<i>VAT incl</i>		<i>VAT incl</i>		<i>VAT incl</i>		<i>VAT incl</i>
Homepower 1	59.52	<i>67.85</i>	16.08	<i>18.33</i>	24.18	<i>27.57</i>	R 3.26	<i>R 3.72</i>
Homepower 2	59.52	<i>67.85</i>	16.08	<i>18.33</i>	24.18	<i>27.57</i>	R 6.10	<i>R 6.95</i>
Homepower 3	59.52	<i>67.85</i>	16.08	<i>18.33</i>	24.18	<i>27.57</i>	R 12.59	<i>R 14.35</i>
Homepower 4	59.52	<i>67.85</i>	16.08	<i>18.33</i>	24.18	<i>27.57</i>	R 1.99	<i>R 2.27</i>
Homepower Bulk < 500V *	59.52	<i>67.85</i>	16.08	<i>18.33</i>	24.18	<i>27.57</i>	R 20.65	<i>R 23.54</i>

* The network access charge is a R/kVA charge and is based on the Notified Maximum Demand (NMD).

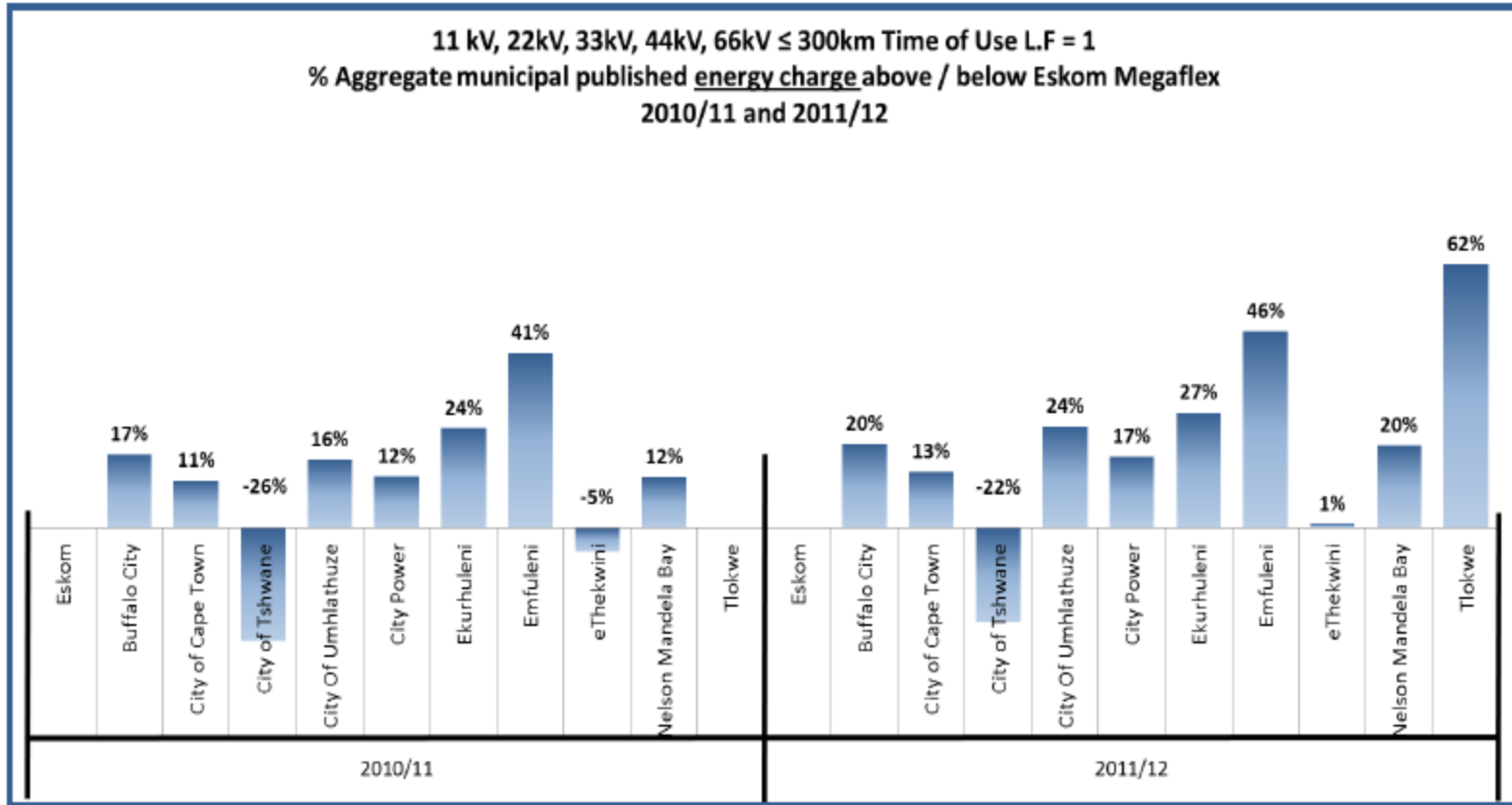
Table 81: Landrate and Landlight – 2013/14 Non-local authority

Landrate tariffs											Non-local authority	
	Energy charge [c/kWh]		Network access charge [R/POD/day]		Network demand charge [c/kWh]		Reliability energy charge [c/kWh]		Service charge [R/POD/day]			
	<i>VAT incl</i>	<i>VAT excl</i>	<i>VAT incl</i>	<i>VAT excl</i>	<i>VAT incl</i>	<i>VAT excl</i>	<i>VAT incl</i>	<i>VAT excl</i>	<i>VAT incl</i>	<i>VAT excl</i>		
Landrate 1	70.86	80.78	R 17.40	R 19.84	29.39	33.50	0.61	0.70	R 10.64	R 12.13		
Landrate 2	70.86	80.78	R 34.80	R 39.67	29.39	33.50	0.61	0.70	R 10.64	R 12.13		
Landrate 3	70.86	80.78	R 69.59	R 79.33	29.39	33.50	0.61	0.70	R 10.64	R 12.13		
Landrate 4	173.55	197.85	R 11.13	R 12.69	29.39	33.50	0.61	0.70				
Landlight	266.18	303.45										
Landrate Dx										31.36	35.75	

Impact of tariffs

	Energy use	Energy charge	Network charge	Network charge as percentage of total
Agric	309	R 540.57	R 602	53%
Rural homestead	441	R 321.31	R1267.86	80%
homepower	309	R 183.90	R 562	75%

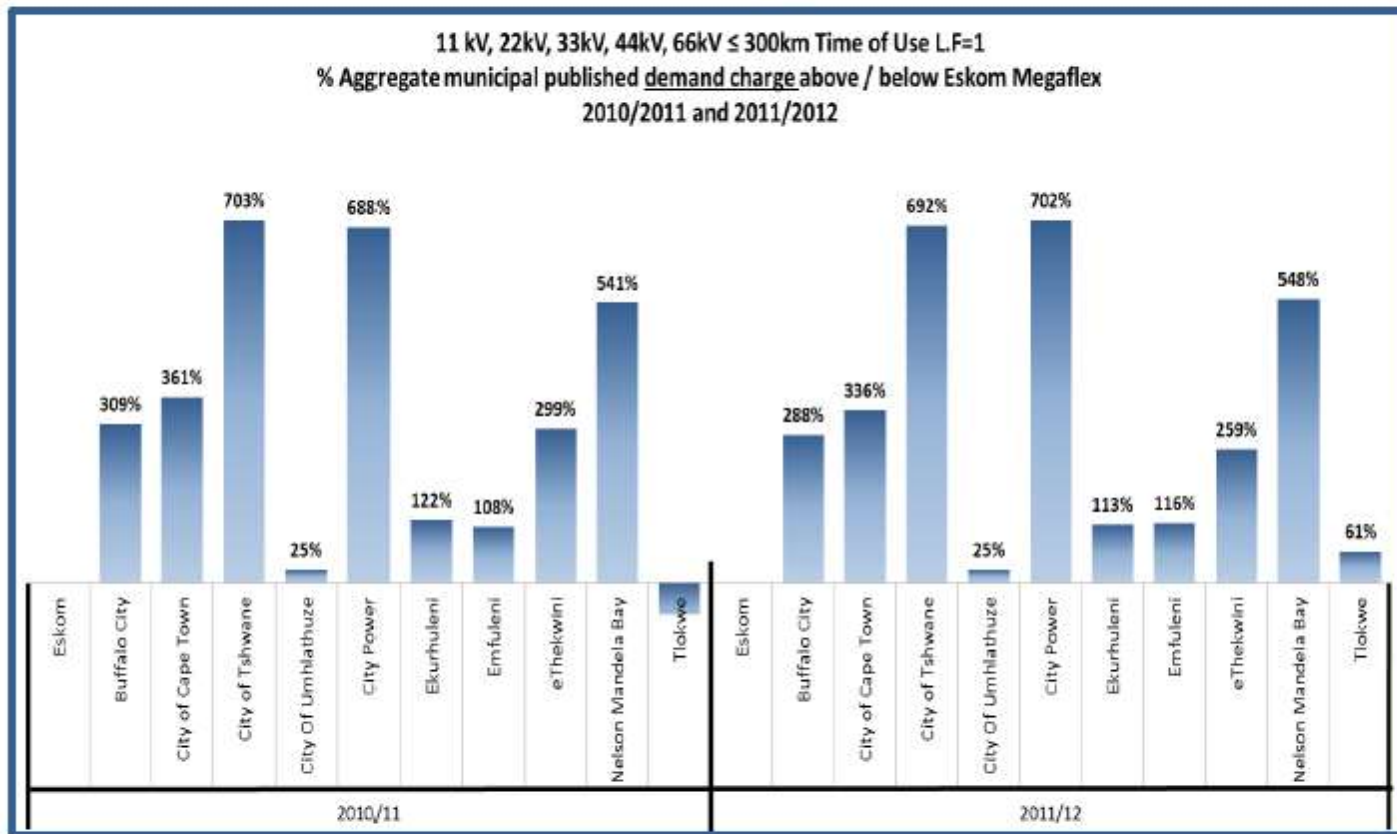
Municipal tariff increases bear no relation to efficient cost of supply – non regulated fixed charges are often manipulated in order to drive revenue



Sources: BDO, select municipalities

The true reflection of what is actually being charged is however often understated due to non-standard charges. NERSA regulates categories consisting of an energy charge, a demand charge and a fixed charge. Surcharges and levies fall outside the mandate of NERSA and Nersa is thus not in a position to regulate additional levies or surcharges that municipalities impose. Municipalities appear to be able to apply such non-standard charges at their discretion with little or no regulation.

Municipalities Loading the fixed (Demand) charges



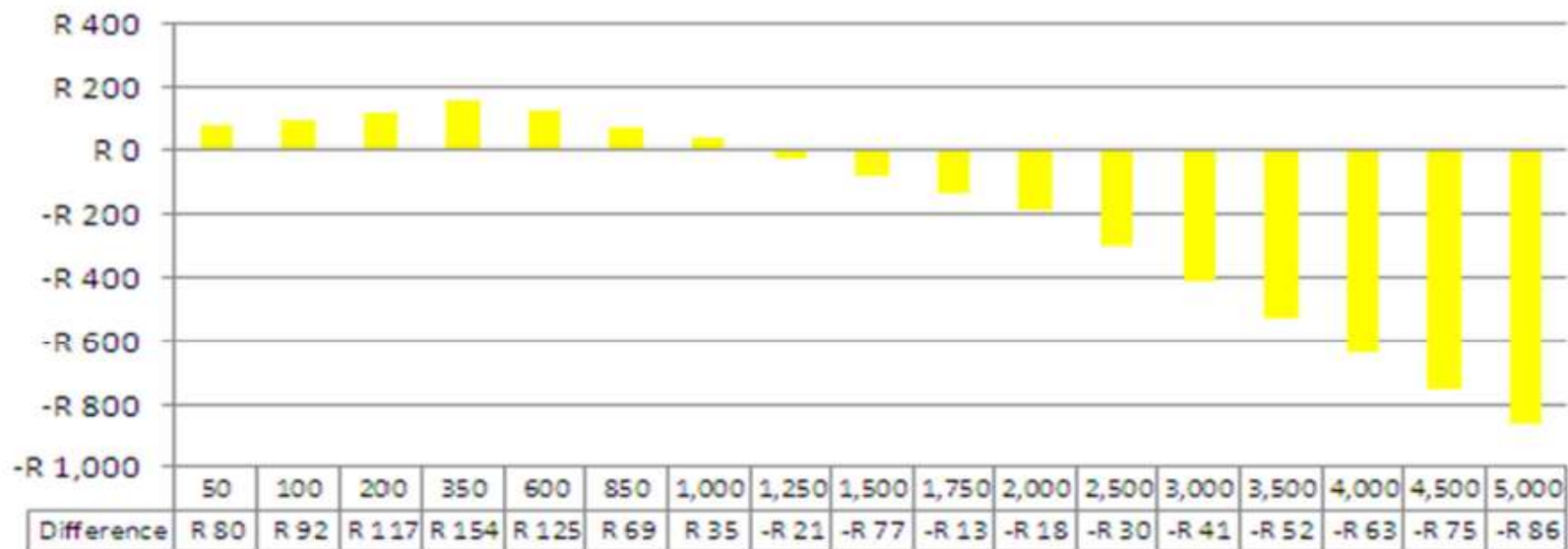
Sources: BDO, select municipalities

A recent BDO analysis of the purchase costs from both Eskom and the municipalities making up the study found that there is a heavy bias in the costs for the demand charge component of electricity. The tariffs bear the imprint of historical investment decisions at the point of their inception. The question must be asked why such inflated charges are still being charged against equipment that should be fully depreciated.

Table 21: Comparison of current and proposed R/day service and administration charges 2012/13 (excl. VAT)

	Supply size	Current	Proposed	Difference
Administration charge	≤ 100 kVA	R 1.93	R 0.73	-62%
	> 100 kVA & ≤ 500 kVA	R 11.26	R 3.94	-65%
	> 500 kVA & ≤ 1 MVA	R 22.38	R 9.73	-57%
	> 1 MVA	R 55.71	R 15.52	-72%
	Key customers	R 77.36	R 15.52	-80%
Service charge	≤ 100 kVA	R 8.79	R 9.60	9%
	> 100 kVA & ≤ 500 kVA	R 40.17	R 62.88	57%
	> 500 kVA & ≤ 1 MVA	R 123.61	R 204.55	65%
	> 1 MVA	R 123.61	R 204.55	65%
	Key customers	R 2,422.28	R 748.59	-69%

Homepower 4 R/ month difference current vs restructured



Monthly kWh consumption

- Food security implications
- Increase in agric elec prices of **19% to 26%**

- Poverty implications:
- Food price rises
- Decrease in first year and then **9%** increase

Revenue Collection or provision of electricity service?

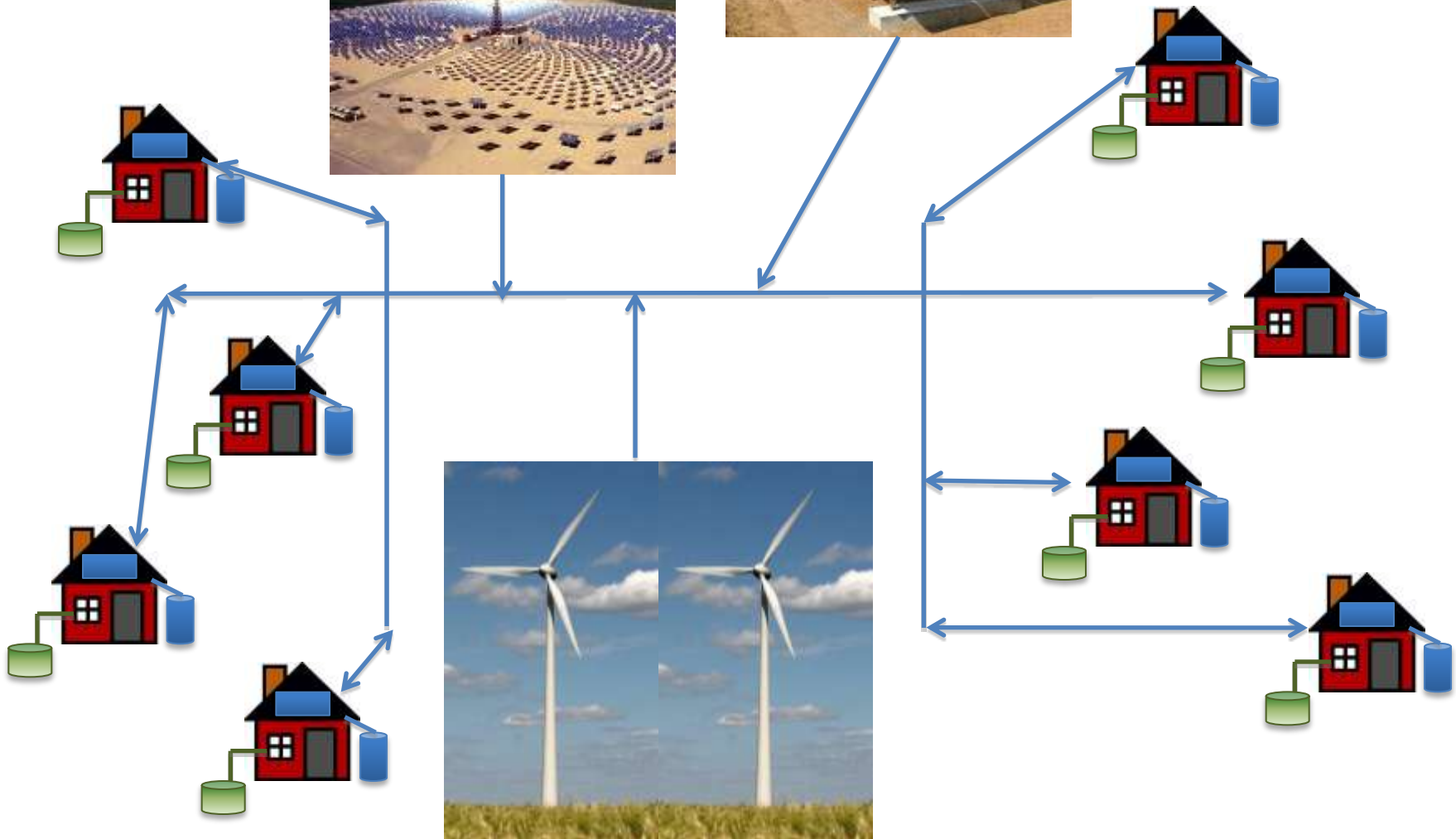
- The introduction of fixed charges mitigates the revenue risk associated with having fixed costs recovered through variable charges. For example a reduction of energy usage due to energy efficiency or own generation such as small-scale renewables does not result in a commensurate reduction on network or fixed costs in the short-run.
- Greater equity as subsidies are better targeted to the poor and more affluent customers do not unfairly benefit from the tariff structure and that the poor remain protected.

Basket of services

- Solar Water Heater
- Ceiling
- Solar electricity
- Gas for cooking/ space heating
- Subsidy of R11 000 per household
- 300 kWh or equivalent



World 4?



Financing basket

Sources of funding:

- Municipal Infrastructure Grant - MIG and Electrification fund – INEP (R11000 per connection)
- Environmental levy (R 12 bn)
- Cross subsidies (R2.193 bn)
- SWH programme (R4000 – R7000 per SWH)
- REIPPP social responsibility

Final demands!

- No tariff increase before review of IRP.
- Remove perverse incentives that discourage efficiency and small scale renewables
- No fixed costs but relate network charges to usage. Maintain transparency of costs and extend to munics.
- Increase FBE but also address provision of energy needs to ensure access by poor independent of income