



**Western Cape
Government**

Economic Development
and Tourism

Western Cape Broadband strategy: Integrated Master Plan

CFO Forum

05 March 2012

Economic Development is at the centre of the provincial strategy, Broadband is a key enabler of this strategy

“Economic development is key to addressing the many challenges facing the Province. Strategies adopted must subscribe to the paradigm that there cannot be development without economic growth”

1. Increasing opportunities for growth and jobs
2. Improving education outcomes
3. Increasing access to safe and efficient transport
4. Increasing wellness
5. Increasing safety
6. Developing integrated and sustainable human settlements
7. Mainstreaming sustainability and optimising resource-use efficiency
8. Increasing social cohesion
9. Reducing poverty
10. Integrated service delivery for maximum impact
11. Increasing opportunities for growth and development in rural areas
12. Building the best-run regional government in the world

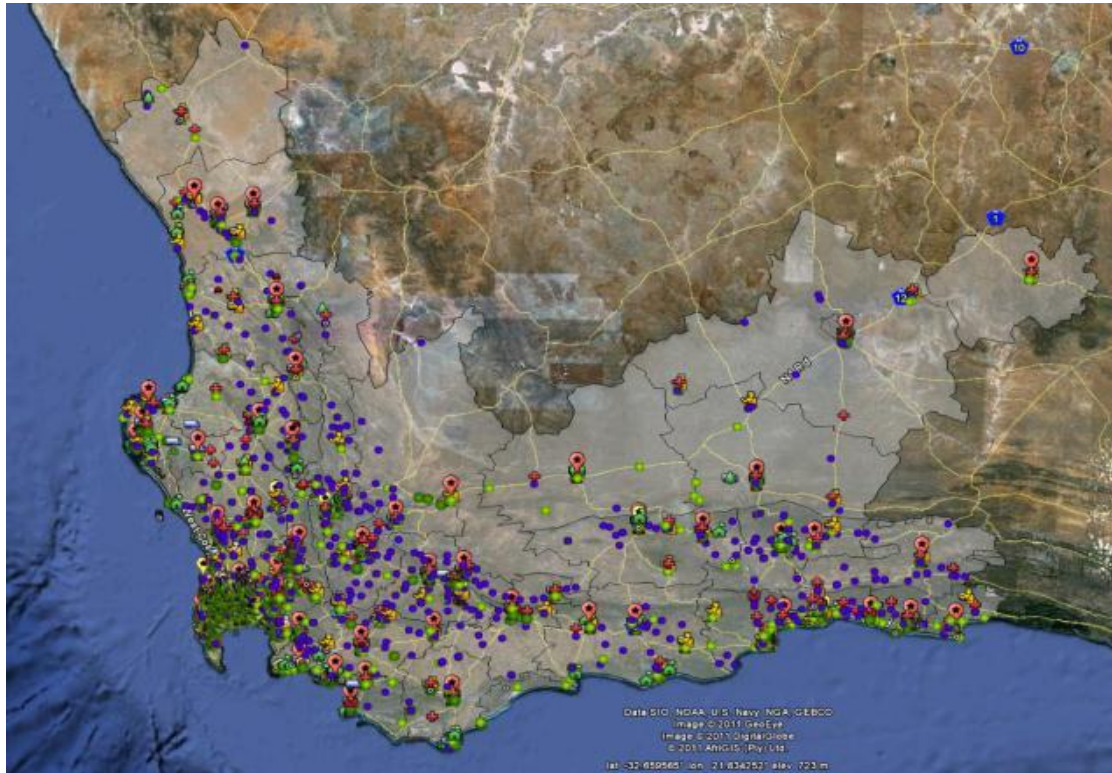
Cost Efficiency

**Increased Effectiveness &
improved Government
Service Delivery**

**Economic and Social
Development**

Problem Statement

Government Efficiency & Effectiveness



Government is scattered all over the province.

However each level of government runs it's own systems and networks - many of which do not meet business requirements and are not properly integrated.

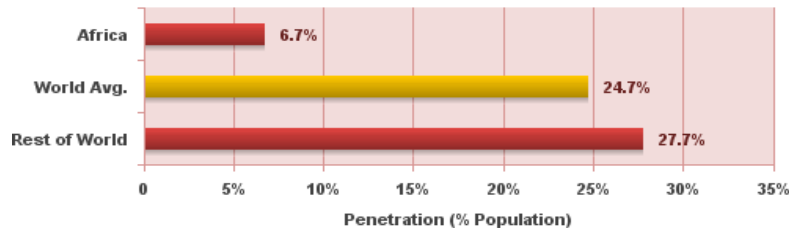
Leads to duplication of expenditure and sub-optimal usage of public funds (i.e. extremely costly)

Processes are largely paper based which is labour intensive, prone to error and information cannot be shared – prevents effective service delivery

Problem Statement

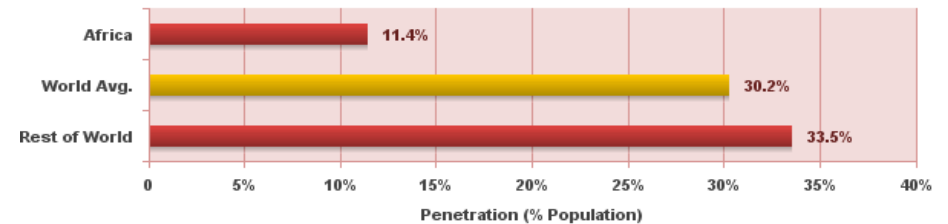
Economic Development

**Internet Penetration in Africa
2009 Second Quarter**



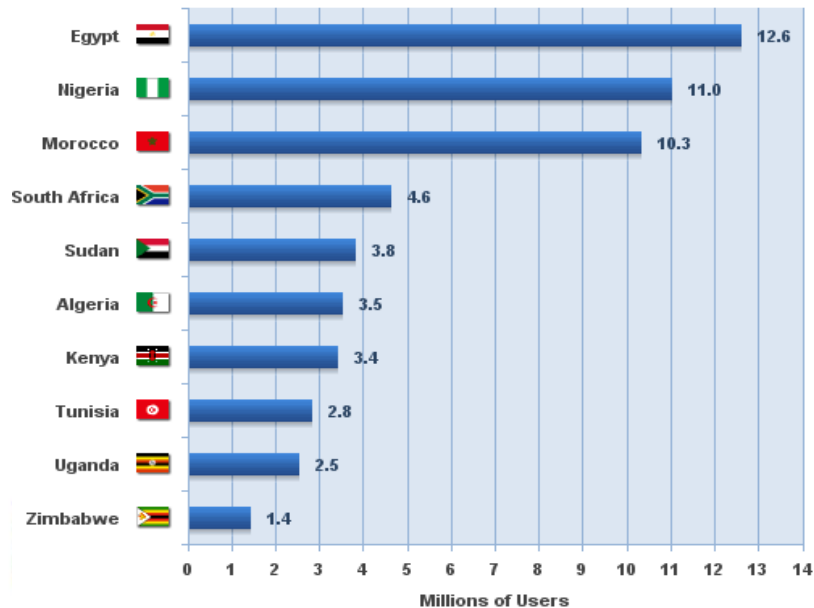
Source: Internet World Stats - www.internetworldstats.com - March 2009
65,903,900 estimated Internet users in Africa for June 2009
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**Internet Penetration in Africa
March 31, 2011**



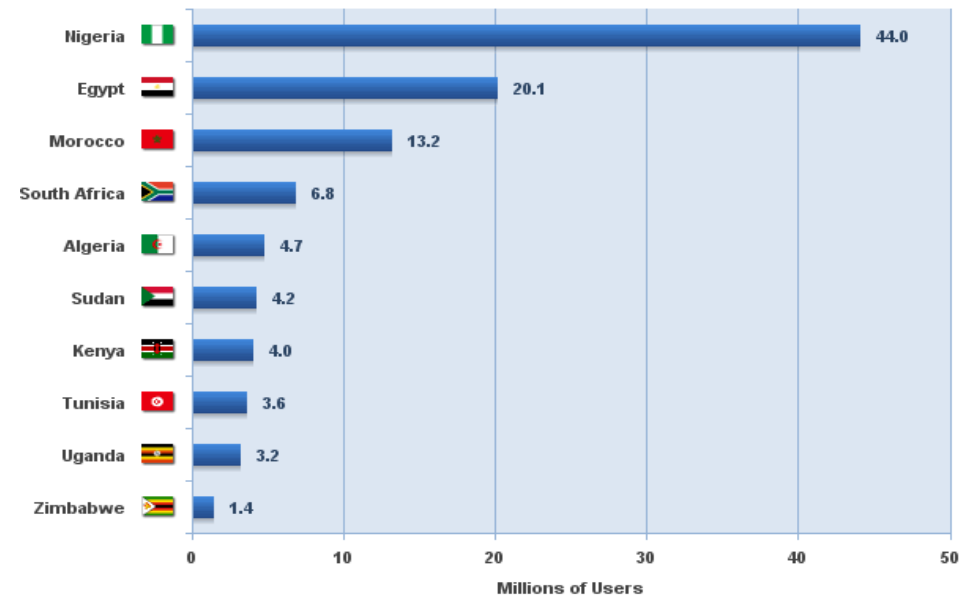
Source: Internet World Stats - www.internetworldstats.com/stats1.htm
118,609,620 estimated Internet users in Africa for March 31, 2011
Copyright © 2011, Miniwatts Marketing Group

**Africa Top 10 Internet Countries
June 2009**



Source: Internet World Stats - www.internetworldstats.com - June 2009
Copyright © 2009, Miniwatts Marketing Group

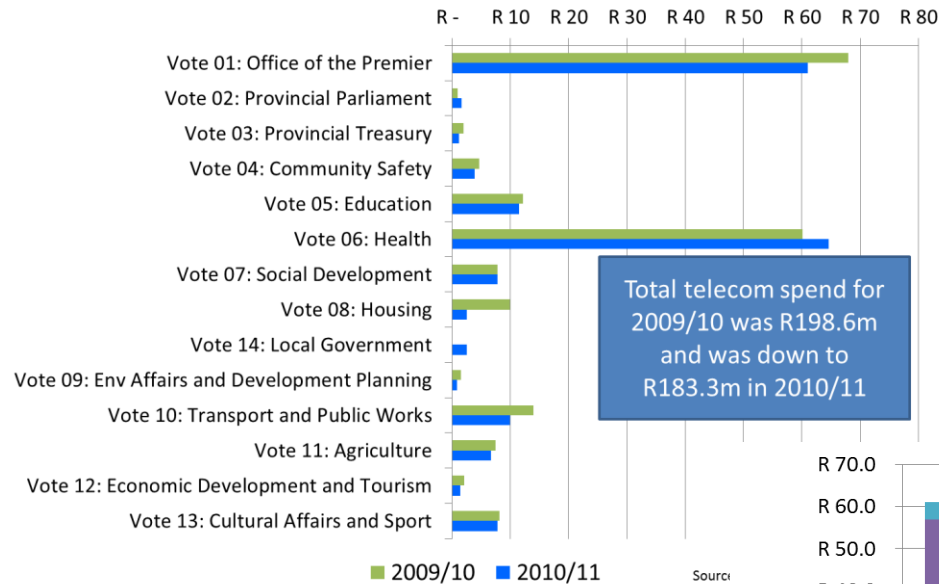
**Africa Top Internet Countries
March 31, 2011**



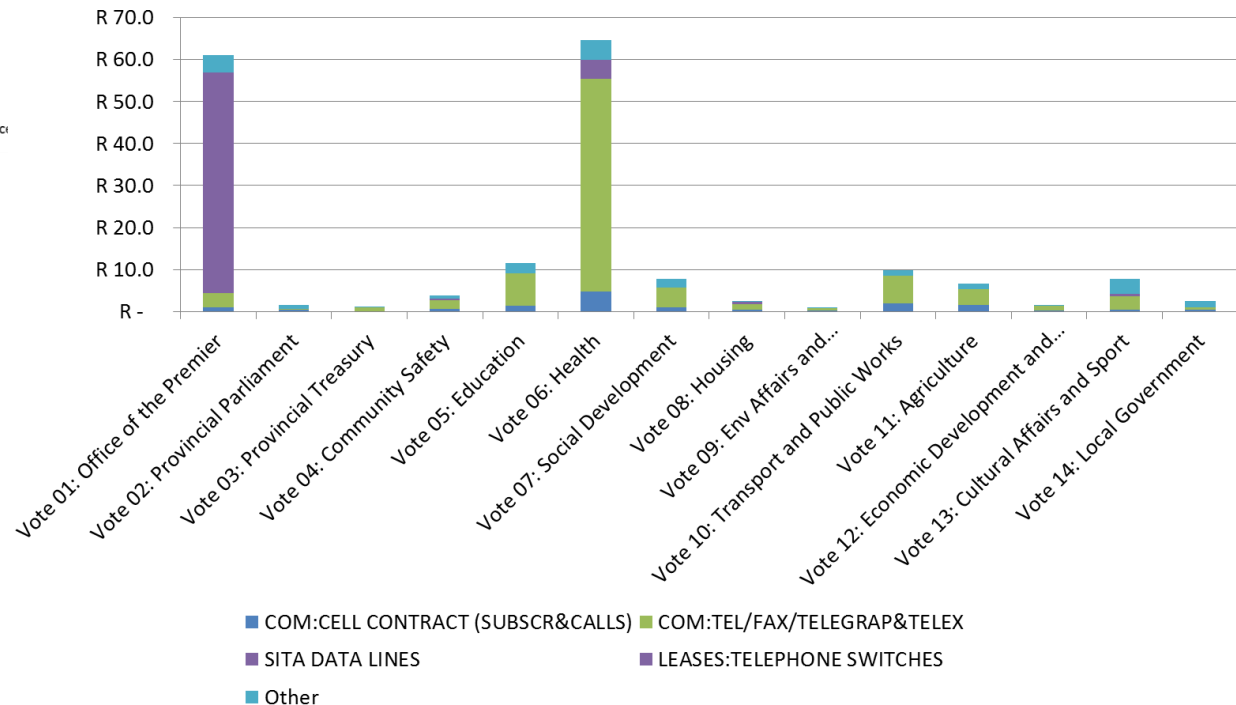
Source: www.internetworldstats.com/stats1.htm
Copyright © 2011, Miniwatts Marketing Group

Finding:

Status Quo "As is": Provincial Spend 2009/10 & 2010/11 (Rm)



Findings: Status Quo "As is": Big ticket items



Source: National Treasury, BMI-T analysis



Findings:

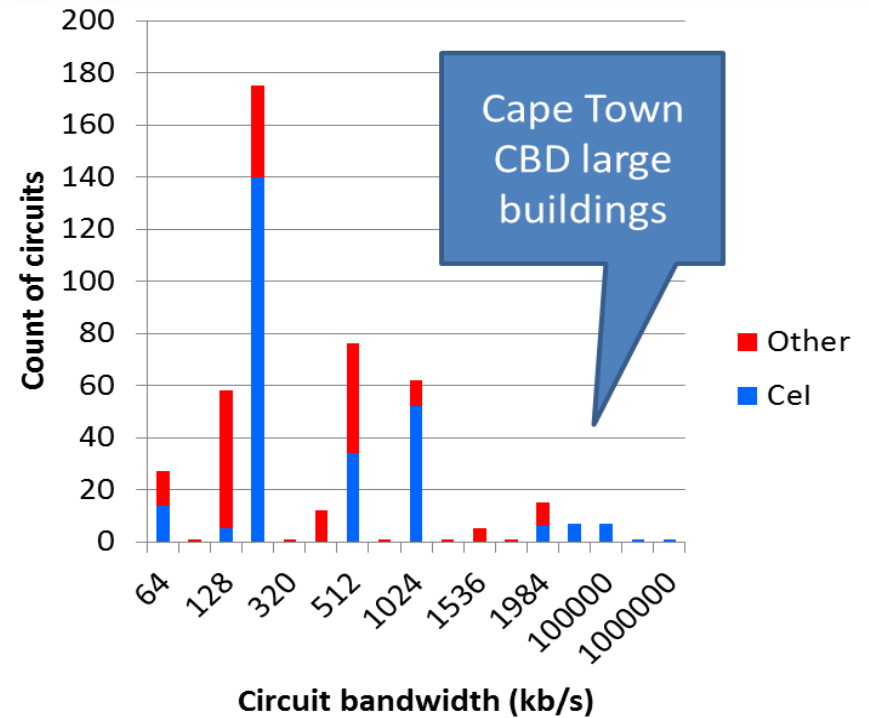
Gap: Connecting Government

Around 4,000 unique government building facilities in the Western Cape

Less than 20 PGWC and around 50 CoCT and 50 municipal sites are connected at true speeds of 10Mb/s or more

Current plans include transitioning 76 PGWC buildings in CBD to CoCT fibre and 2 more hospitals to 10M

Hence less than 3% of government buildings meet the 2014 targets and the resultant gap is > 97%



It is crystal clear that without intervention by the PGWC, the gap within the Western Cape will remain large while the gap between us and the RoW will widen

Findings:

Status Quo “As is”: Municipal Telecom Expenditure

Total spend for 2009/2010 was around R175m.

CoCT alone accounted for R117m of this i.e. 66.9%

However there is a low spend on data services (mainly voice). Limited use of ICT solutions

Extensive use of wireless (mainly WiFi) and some use of fibre to interconnect buildings

Large degree of self-reliance on internal resources but there are shortcomings and limitations

Significant gap between highest and lowest levels of built infrastructure

Keenness and willingness to learn to implement systems



Range

Municipalities

>R5m

Drakenstein, Saldhana Bay, Stellenbosch, Overstrand

>R2m

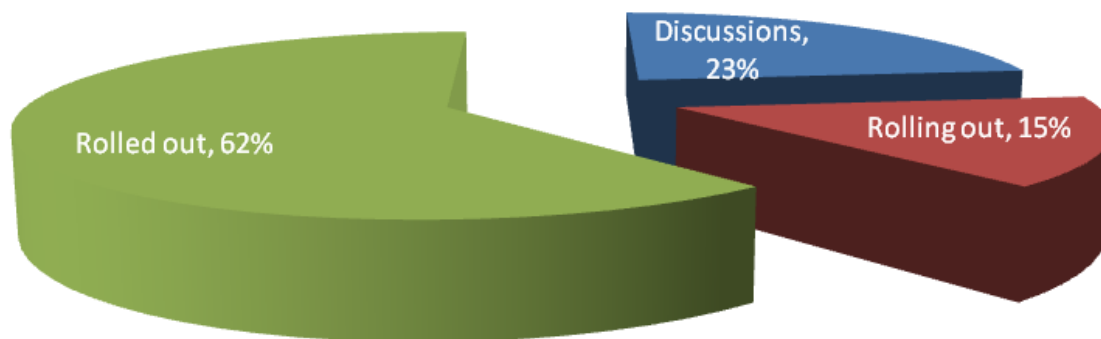
Eden DM, Cape Winelands DM, Breede Valley, Knysna, Hessequa, Theewaterskloof

~R1m

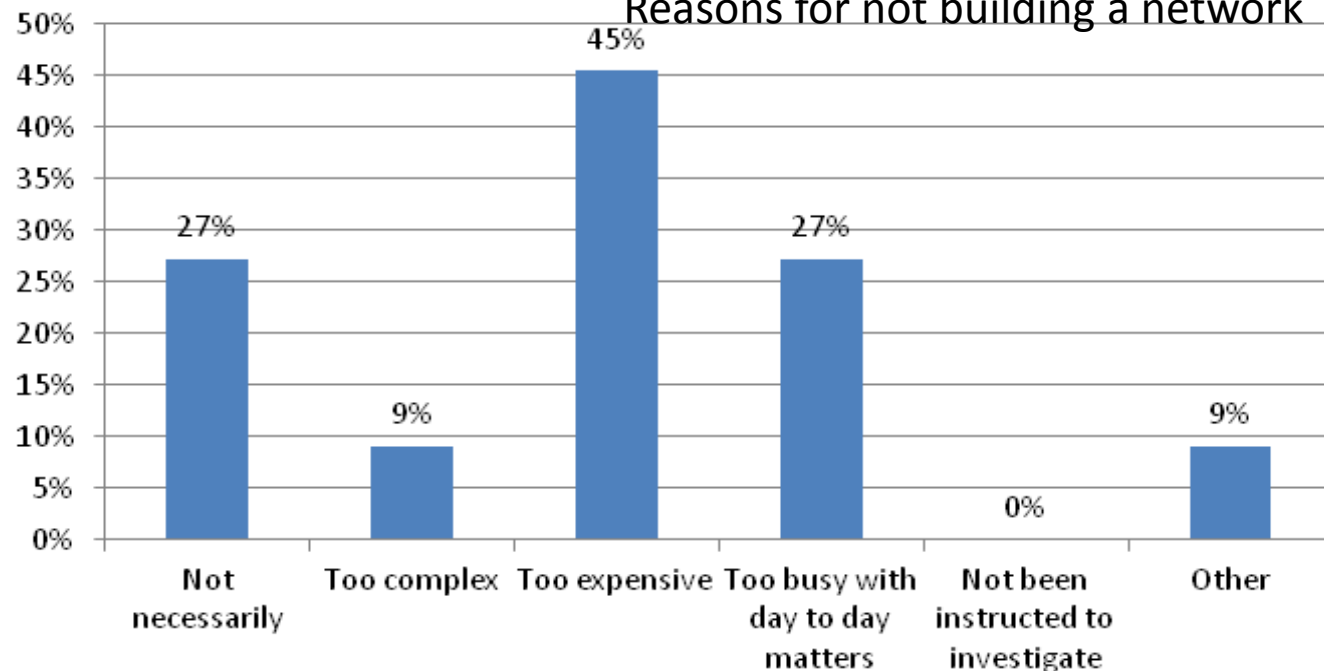
Balance (20 DMs & LMs)

Stage of rolling out Municipal network and Reasons for not building a network

Stage of rolling out Municipal network

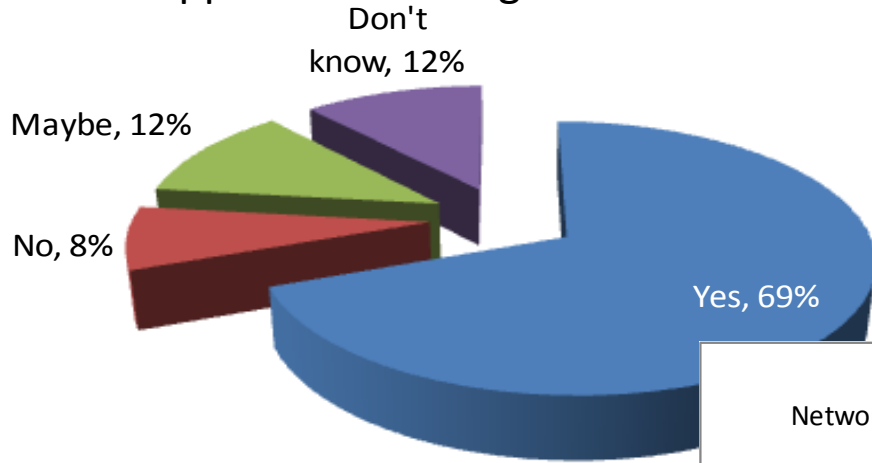


Reasons for not building a network

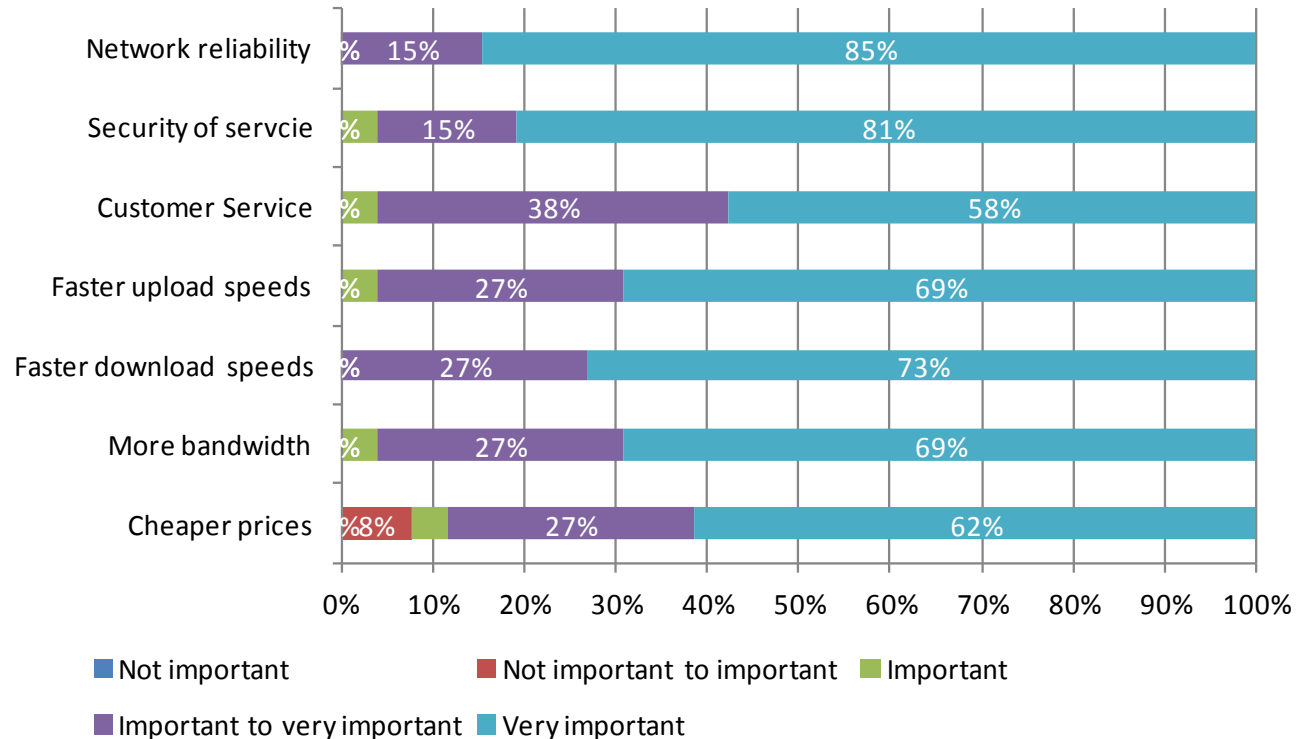


Level of support for building a Provincial network

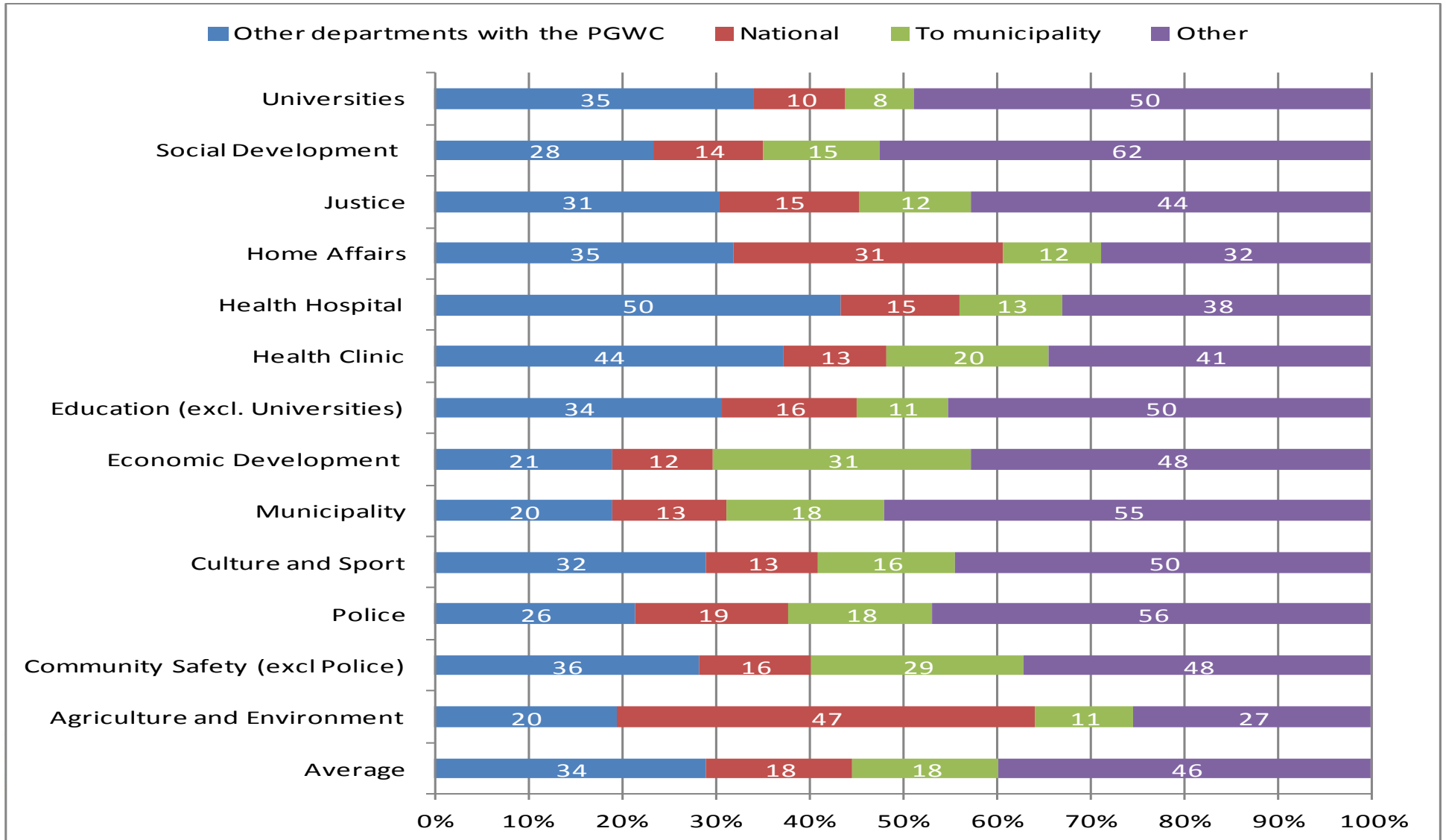
Level of support for building a Provincial network



Attributes municipalities would consider when deciding to move to the PGWC broadband network



Calling destinations

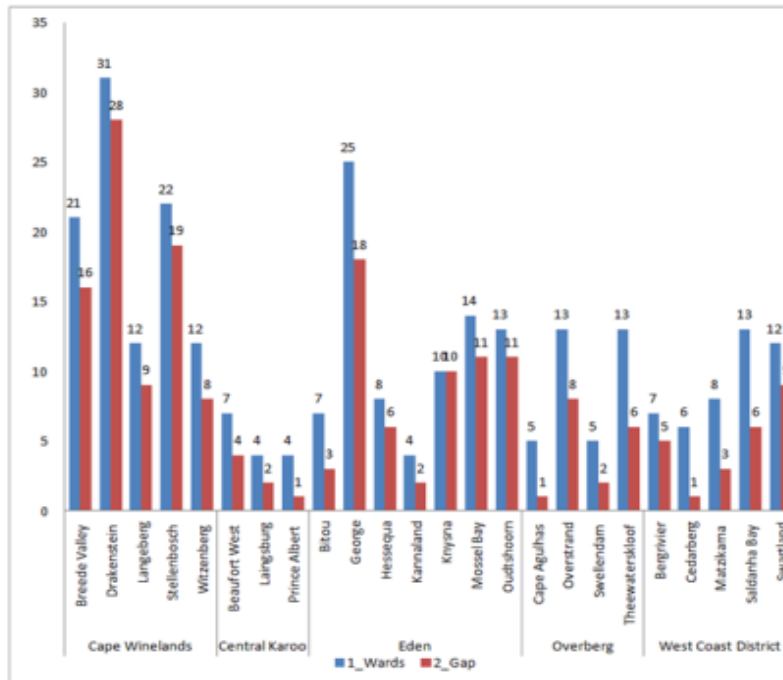


Findings:

Connecting Communities: Gap

International metric & Statistic SA data – +/- 1,500 to 2,700 Telecentres needed
 National Target - Public ICT Access within a 2 km radius of anyone by 2019
 – implies much more than 2700.

Row Labels	Values	
	1_Wards	2_Gap
Cape Winelands	98	80
Breede Valley	21	16
Drakenstein	31	28
Langeberg	12	9
Stellenbosch	22	19
Witzenberg	12	8
Central Karoo	15	7
Beaufort West	7	4
Laingsburg	4	2
Prince Albert	4	1
Eden	81	61
Bitou	7	3
George	25	18
Hessequa	8	6
Kannaland	4	2
Knysna	10	10
Mossel Bay	14	11
Oudtshoorn	13	11
Overberg	36	17
Cape Agulhas	5	1
Overstrand	13	8
Swellendam	5	2
Theewaterskloof	13	6
West Coast District	46	24
Bergervier	7	5
Cedarberg	6	1
Matzikama	8	3
Saldanha Bay	13	6
Swartland	12	9
Grand Total	276	189



Not achievable, affordable or sustainable in PGWC context. Therefore as phase 1, chose wards (386)

In the Metro, there are 44 (of the 110) wards that do not have libraries, so do not have Smart Cape (public ICT facilities)

Other districts (and municipalities reflected left

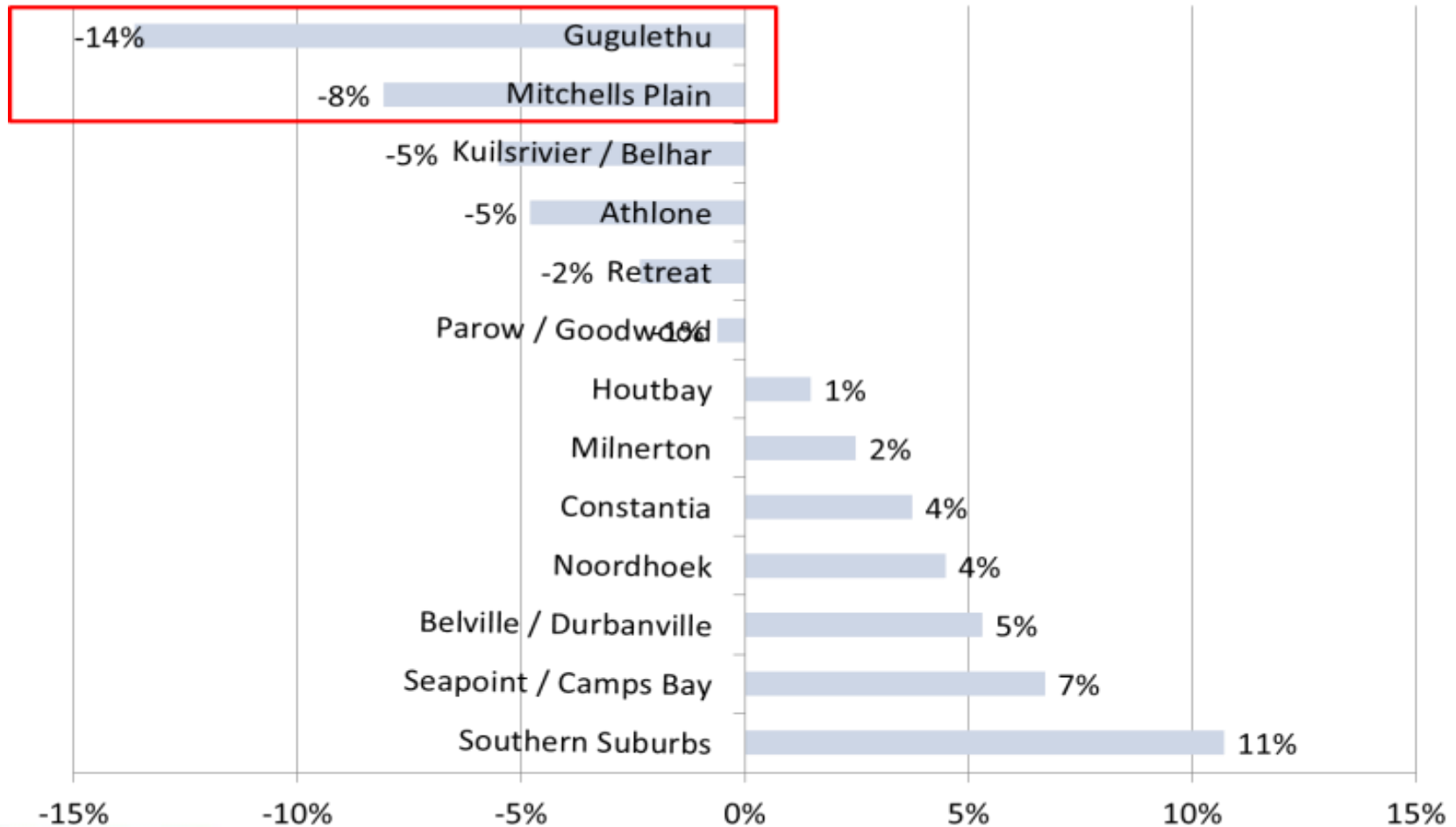
Gap across Western Cape on wards = 44 + 189 = 233

Represents 60% of all wards

Also note that this figure represents new facilities. It does not represent facilities that have to be upgraded to bring to standard or facilities that need to be expanded

Connecting Households Gap

Relative household Internet distribution gap in City of Cape Town



Findings:

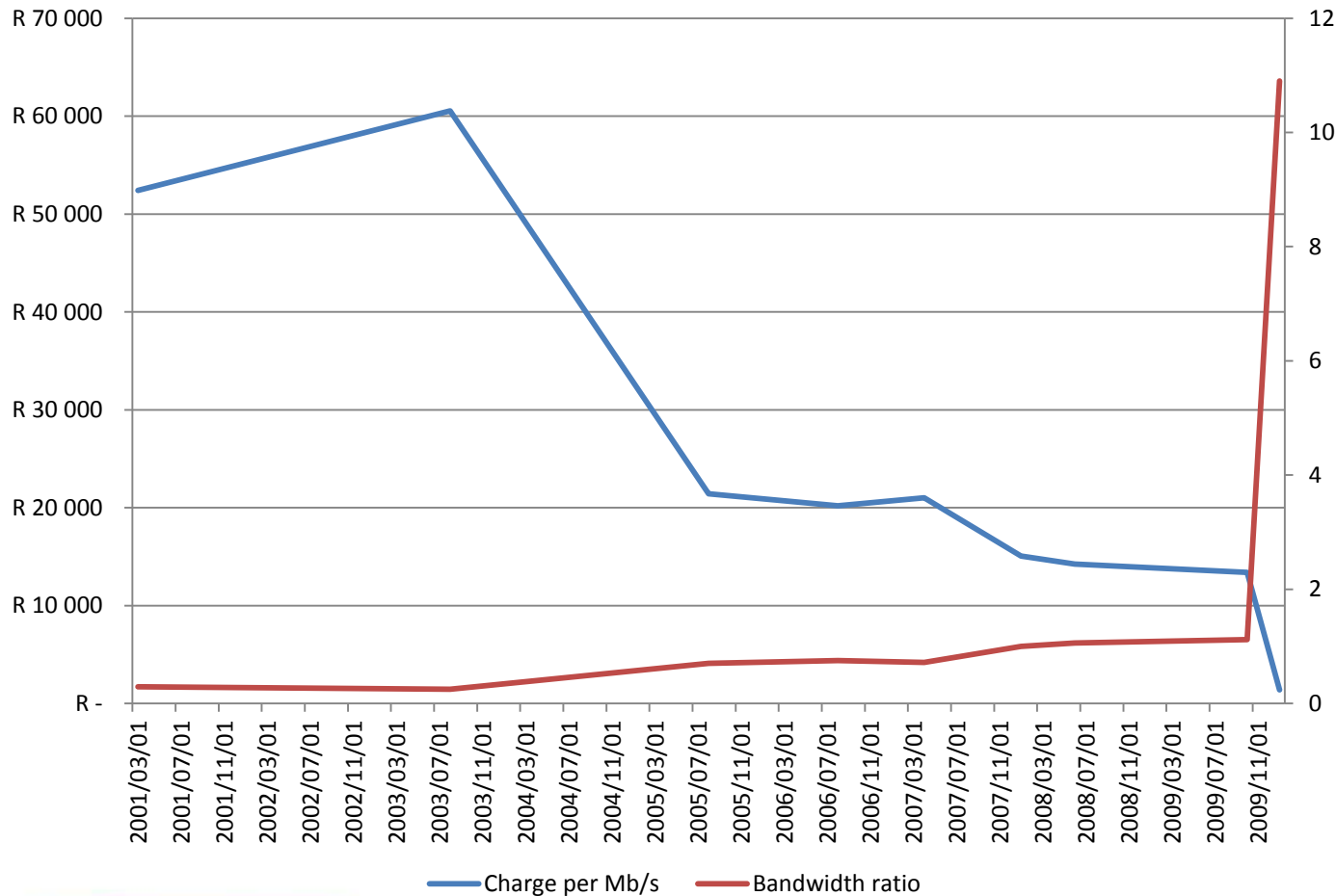
Connecting Business Gap

	Download speed		Upload speed		Cost	
	Rank	Mbps	Rank	Mbps	Rank	US\$/Mbps
Average		9.34		3.41		9.84
# countries measured	172		172		64	
Estonia	1	50.16	1	27.66	23	4.36
S. Korea	2	31.44	2	27.52	n/a	
Sweden	5	34.85	17	9.36	20	3.66
Netherlands	7	24.48	20	6.67	15	3.35
Singapore	8	22.92	6	12.28	27	4.48
US	31	12.42	37	2.98	29	4.95
Canada	33	12.02	68	1.74	33	5.85
Australia	42	9.92	95	1.23	46	10.11
Ghana	51	7.48	21	6.54	n/a	
Rwanda	80	4.22	28	4.65	n/a	
Kenya	84	4.88	51	2.16	n/a	
Argentina	86	3.87	112	1.02	45	9.46
South Africa	106	2.81	111	1.06	63	38.87

Businesses in the Western Cape experience far lower broadband speeds and face far higher broadband costs than many of their international competitors, impacting on their overall competitiveness and strategic possibilities.

Findings: International Connectivity

Precedent: What Tenet achieved



Non-Profit-Company connecting 120 campuses of 53 R & E institutes in South Africa.

Network connects to the SANReN, Telkom and Neotel.

10Gb/s link to Europe (IRU from SEACOM)

Opex budgets of R&Es, DBSA loan FETs and Schools could benefit



From R60k → R15k → R2k per Mb/s

Recommended High level WC telecommunications infrastructure milestones

Infrastructure development is a key catalyst and that Government's role has to be to facilitate and drive the development of telecommunications infrastructure in the province.

2014

- 70% government buildings & 100% of public schools connected.
- All communities have access to public ICT facilities (in every ward)
- Large government buildings and specific targeted industries in the metropolitan area are connected via “fibre to the premises”.

2020

- Every citizen in every town and village has access to affordable broadband infrastructure.
- Citizens in the metropolitan area have access to affordable broadband infrastructure at network speeds in excess of 100Mbps.

2030

- Every citizen in every town and village has access to affordable broadband infrastructure at a minimum network speed of 1000Mbps.



National Targets

- Universal broadband access by 2020
- Public ICT Access within a 2 km radius of anyone by 2019

Recommendations - 8 core projects

Connected Leadership

- Broadband Advisory Council
- Broadband Programme Office
 - Manage & Direct ensuring integration & synergy
 - Monitoring & Evaluation

Connected Government

- Part 1: Build Provincial backbone
 - Phase 1, Phase 2 & Phase 3
- Part 2: Connect government facilities (via building municipal infrastructure)

Connected schools

- Connect all schools in by 2014
- Utilise schools network as a basis for connecting other government facilities & for connected communities

Connected Communities

- Phase 1: ensure that there is at least one public ICT access facility in every ward by 2014, so all communities are serviced.

Connected Households

- Create a wireless mesh networks as a “last mile” open access network connecting all households in Khayalitsha/ Mitchells Plain and Saldana

Low cost computing

- Seeding the environment with low cost computing devices
- Refurbishment and pilot other low cost devices (esp. in schools)
- E-Waste

Connected Business

- connecting of businesses directly into the City’s fibre backbone
- Creating high speed “cloud based” services hub”

Connecting to the world

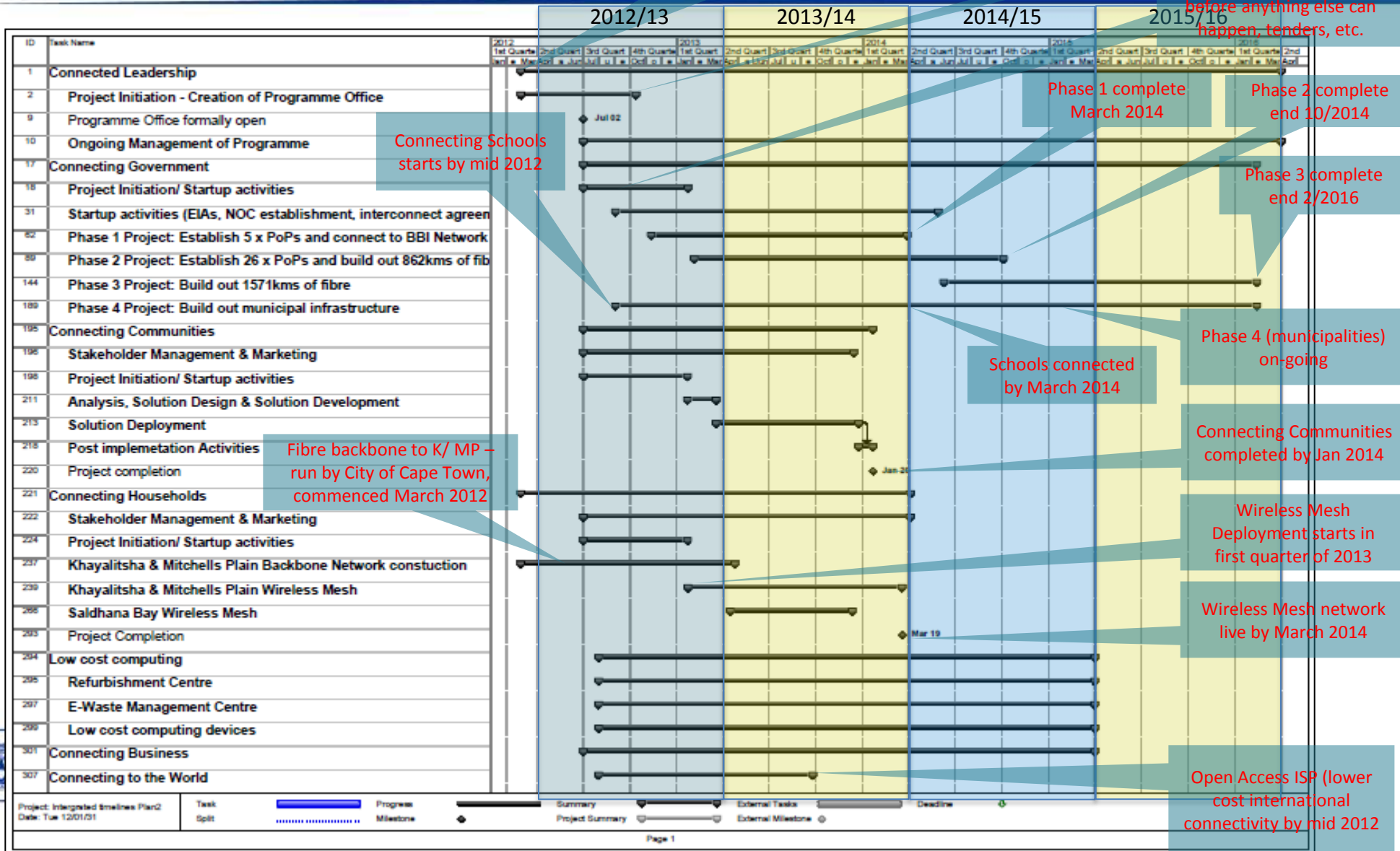
- Reduce international bandwidth costs by using government as a demand aggregator & anchor client

Timeline with significant milestones

Broadband Programme commences with key task of establishing PMO with capacity to drive programme (April 2012). Only interim capacity at this stage.

PMO formally open on 2 July 2012

Various activities needed before anything else can happen, tenders, etc.



Connecting Schools starts by mid 2012

Fibre backbone to K/ MP – run by City of Cape Town, commenced March 2012

Phase 1 complete March 2014

Phase 2 complete end 10/2014

Phase 3 complete end 2/2016

Phase 4 (municipalities) on-going

Schools connected by March 2014

Connecting Communities completed by Jan 2014

Wireless Mesh Deployment starts in first quarter of 2013

Wireless Mesh network live by March 2014

Open Access ISP (lower cost international connectivity by mid 2012)

Institutional model - BWired Case Study

- A ringfenced special purpose vehicle (spv) will be needed for the implementation of this programme.
- There is already a National Treasury approved model that we could learn from.



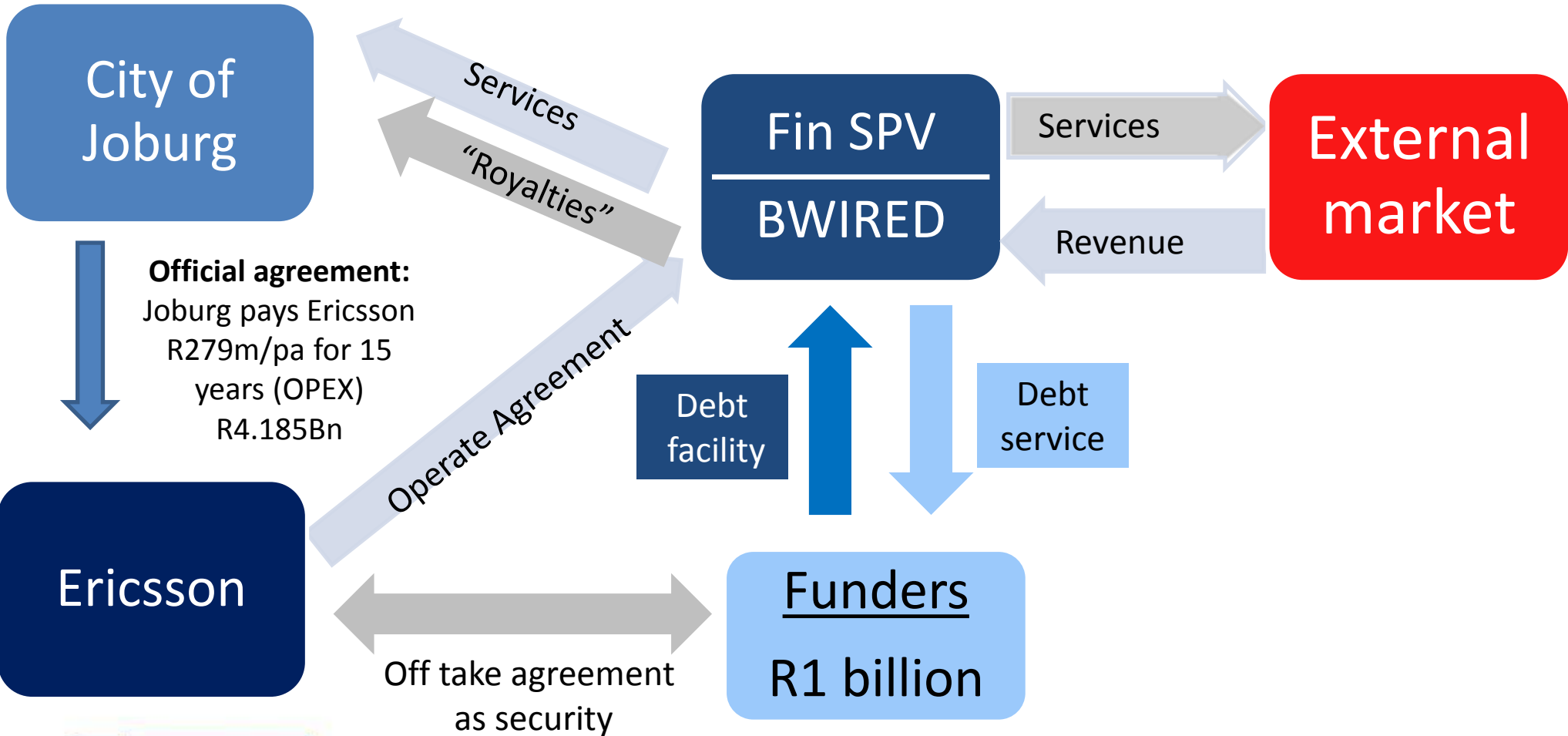
Largest gov. funded
fibre network in SA:
R4.185bn over 15 yrs

Not a PPP, section
33 of MFMA
approved by treasury

Salient points:

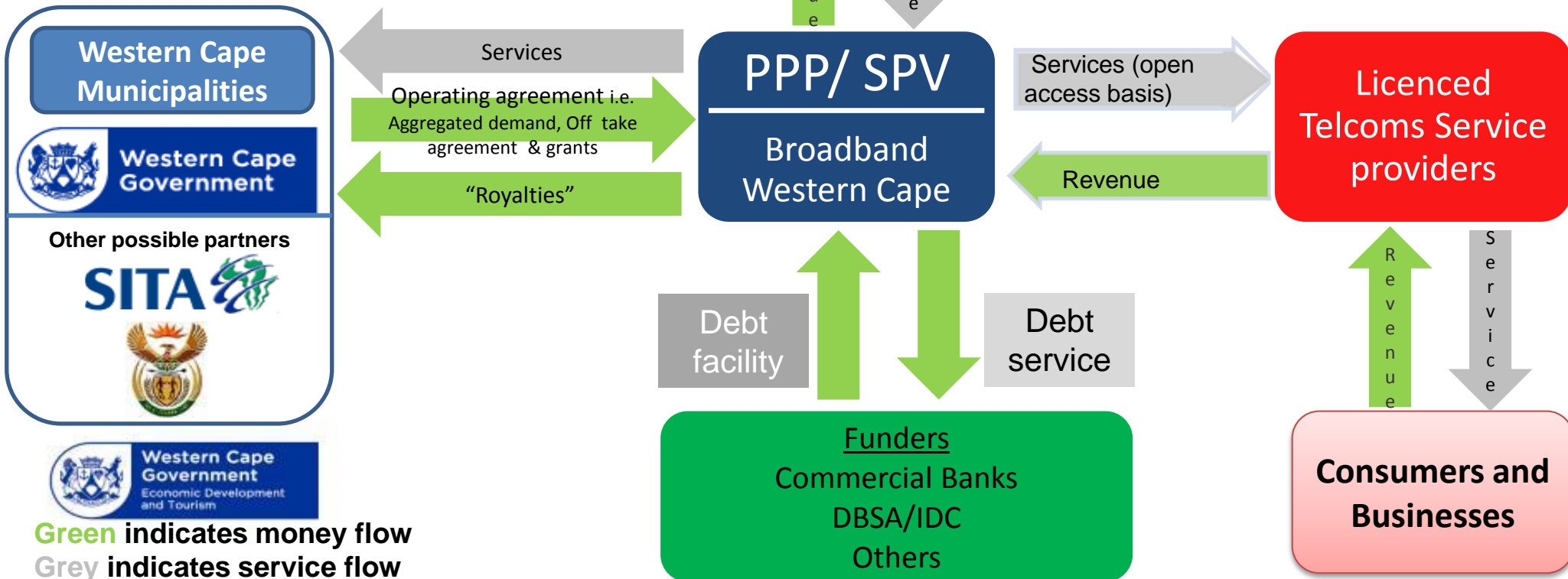
1. 15 year contract: 3yr build and 12yr operate & renew
2. Capitalised cost = R1 billion (Start up costs R152m)
3. Build operate and transfer (BOT) with extension
4. R279 m/pa fee (off take) for 15 yrs
5. No real CBA- argued fully on a 'cost replacement process
6. "Aggregated demand" of R382m pa versus R279m pa thus a 'saving' motivation

BWired Business Model



PGWC Potential Business Model and Key Role Players

Wholesale Service providers – Government and Private Sector



Stepped Approach (linked to Funding approach)

“Direct “ Benefit Model<----Policy process maturation----->” Indirect “Benefit Model

-----Time----->

Step 1: Startup activities (Broadband Programme Office)

Set up Broadband Programme Office to get the programme off the ground. Drive the creation of the Broadband Leadership Council, Start and co-ordinate initial programmes (Schools connectivity, wireless mesh, connecting PGWC building, connecting communities, etc.), advocacy , investigate & setup SPV. Funded by PGWC MTEF funding

Step 2: Migrate to SPV

SPV based on cost replacement business case motivation. Also leverage EPWP and Municipal Contributions. Funded on the basis of long term contract from PGWC. Will drive the creation of Provincial Fibre backbone (Phase 1 & Phase 2)

Step 3: Leveraging Private Sector and social investment the basis of funding

Incorporate SPV into either a Public Entity or PPP if required. A Transaction Advisor (TA) must be appointed with Treasury. Private sector commitment added to the funding mix – increased capital leverage for Phase 3.

Consolidated Budget (Capex & Opex)

Cost in Millions	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Connected Leadership	R 30	R 33	R 36	R 40	R 44	R 48	R 53	R 58	R 64	R 71
Connected Government										
Provincial Backbone (Fibre)	R 84	R 240	R 327	R 441	R 465	R 116	R 115	R 114	R 114	R 113
Access Network (Municipal network support)	R 99	R 194	R 195	R 194	R 147	R 146	R 147	R 146	R 147	R 146
Connected Communities	R 36	R 36								
Connected Households	R 15	R 30								
Low Cost Computing Devices	R 10	R 10	R 10							
Connected Business	R 10	R 10	R 7							
Connecting to the World	R 10	R 24	R 29	R 28	R 27	R 26	R 24	R 24	R 24	R 25
	R 294	R 576	R 604	R 702	R 683	R 336	R 339	R 343	R 349	R 355

Other related activities & funding	FY2012	FY2013	FY2014
Connecting CEI buildings to City fibre (CEI funded)	R 19	R 19	R 19
Connected Schools (WCED Funded)	R 35	R 35	R 35
City fibre (funded by City)	R 70	R 45	R 45

Important to note that this reflects what it would cost. This is not necessarily the budget that needs to be allocated. If a financing (spv) route is pursued, then the budget implication is between R200 to R250 million per annum for a period of 10 years.

Funding model

PGWC and Municipalities are currently spending approx. R375 million per annum on Telecoms (PGWC - R200 Mil, Municipalities – R175 Million)

For the purposes of the business case we believe that R250 million is a reasonable off-take (i.e. cost replacement over a period of time)

Based upon this and calculating over a 10 year period at 10% pa the total investment based on a cost-replacement model is R1.535bn

Funding model:

New investment needed initially

Cost in Millions									
FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
R 294	R 576	R 604	R 702	R 683	R 336	R 339	R 343	R 349	R 355

Important to note that this reflects what it would cost. This is not necessarily the budget that needs to be allocated. If a financing (spv) route is pursued, then the budget implication is R250 million per annum for a period of 10 years as reflected below:

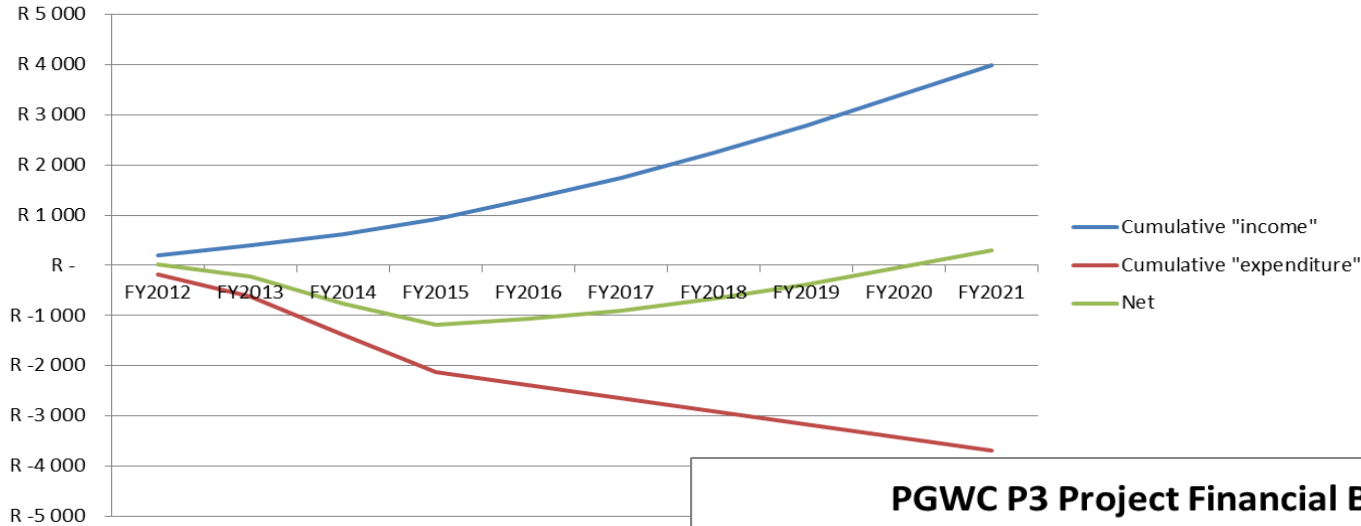
Budget allocation in Millions									
FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
R 294	R 250	R 250	R 250	R 250	R 250	R 250	R 250	R 250	R 250

It is also important to understand that the cost replacement occurs over time – as the new infrastructure is built and commissioned. Therefore if we only look at the Provincial R200 million, and new funds required, we see that new costs reduces over time:

	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
"New money" required	R 200	R 170	R 152	R 134	R 87	R 66	R 29	R -	R -	R -
"Old Money" - Cost recovery from PGWC + Munics	R -	R 30	R 48	R 66	R 113	R 134	R 171	R 205	R 244	R 261

Breakeven Analysis (Financial Breakeven)

**PGWC P1 Project Financial Breakeven Analysis (Rm):
Phases 1, 2 and 3**



This is pure financial breakeven with very conservative assumptions.

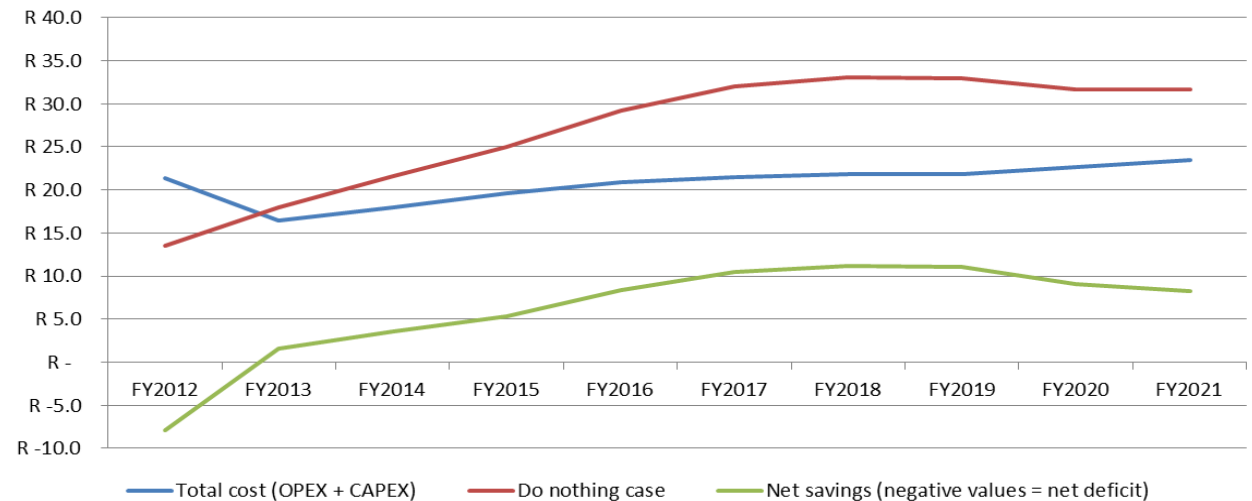
Essentially payback in about 10 years.

Becomes an income generator after that.

Economic breakeven will be much sooner.

P3 (International connectivity) has a projected breakeven of 2 years. Essentially it is a "no brainer"

PGWC P3 Project Financial Breakeven Analysis (Rm)



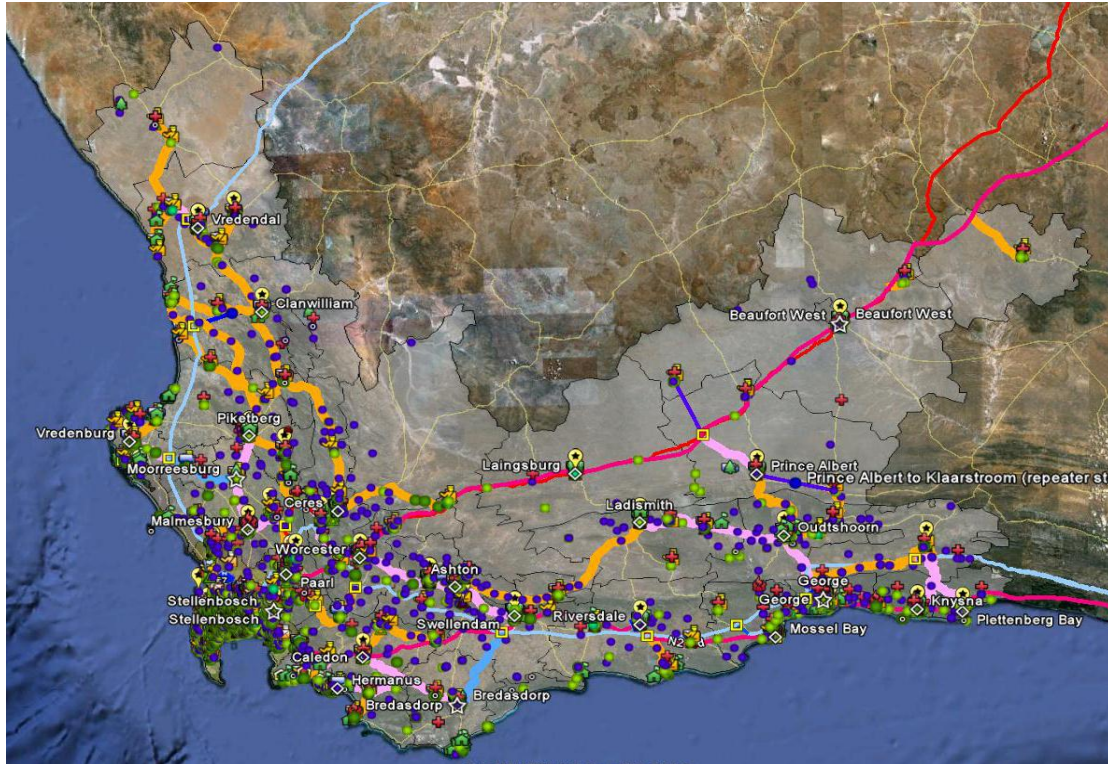
Economic Impact

Macroeconomic Analysis	Annual GDP contribution	Cumulative GDP contribution	Direct & indirect Jobs created pa
2015/16	R2.92 Billion	R8.78 Billion	13136
2030	R22.95 Billion	R184.6 Billion	33112

Cost Benefit Analysis (CBA)	NPV (Rm)	BCR	IRR
Project 1: Connected Government - Public and private sector benefits	17 494	7.5	42%
Project 2: Connected Households - Mitchell's Plain and Khayelitsha	1 425	14.1	1004%
Project 2: Connected Households - Saldanha Bay	84	6.6	197%
Project 3: Connected Business - Reducing cost international bandwidth to the film industry	374	4.5	215%
Project 4: Connected Business - Broadband internet & cloud computing services to businesses in the proposed Fringe district	106	12.7	70%

A BCR greater than 1 indicates that the completed project would constitute an economic asset; a BCR less than 1 implies that the project would be an economic liability. The higher the BCR the less risk there is that the proposed investment could turn out to be less than beneficial economically.

Conclusion



Cost Efficiency

**Increased Effectiveness &
improved Government
Service Delivery**

**Economic and Social
Development**

Discussion



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