

Response to DRAFT IRP 2010



Questionnaire Format

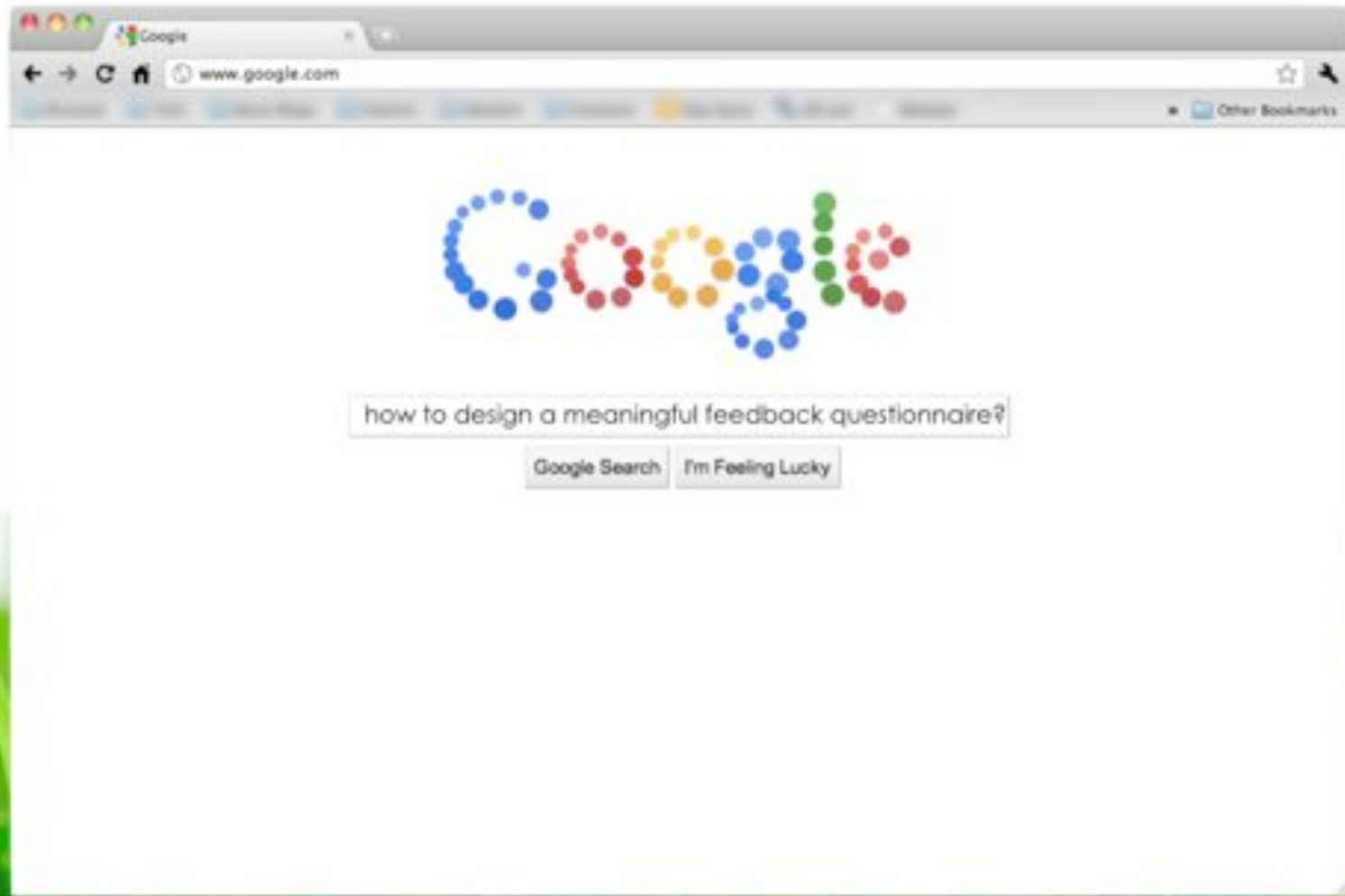
KEY CRITERIA USED TO DEVELOP THE DAFT IRP 2010

Proposed Criteria	Q1. To what extent do you believe the draft IRP meets this criterion? If you believe it did not, explain why.	Q2. How would you weight the criterion (in the range 0 to 10)?
(a) Least cost to the consumer	Feedback, feedback, feedback...	NOTED
(b) Lowest greenhouse gas emissions	Feedback, feedback, feedback....	NOTED
(c) Lowest water consumption		
(d) Least risk or uncertainty		
(e) Greatest localisation potential		
(f) Greatest regional development		

Q 3. What additional criteria do you believe should have been added in evaluating the scenarios?

Additional criteria	Why?	Weight (in the range 0 to 10)

Questionnaire Format



Questionnaire Format

e.g.

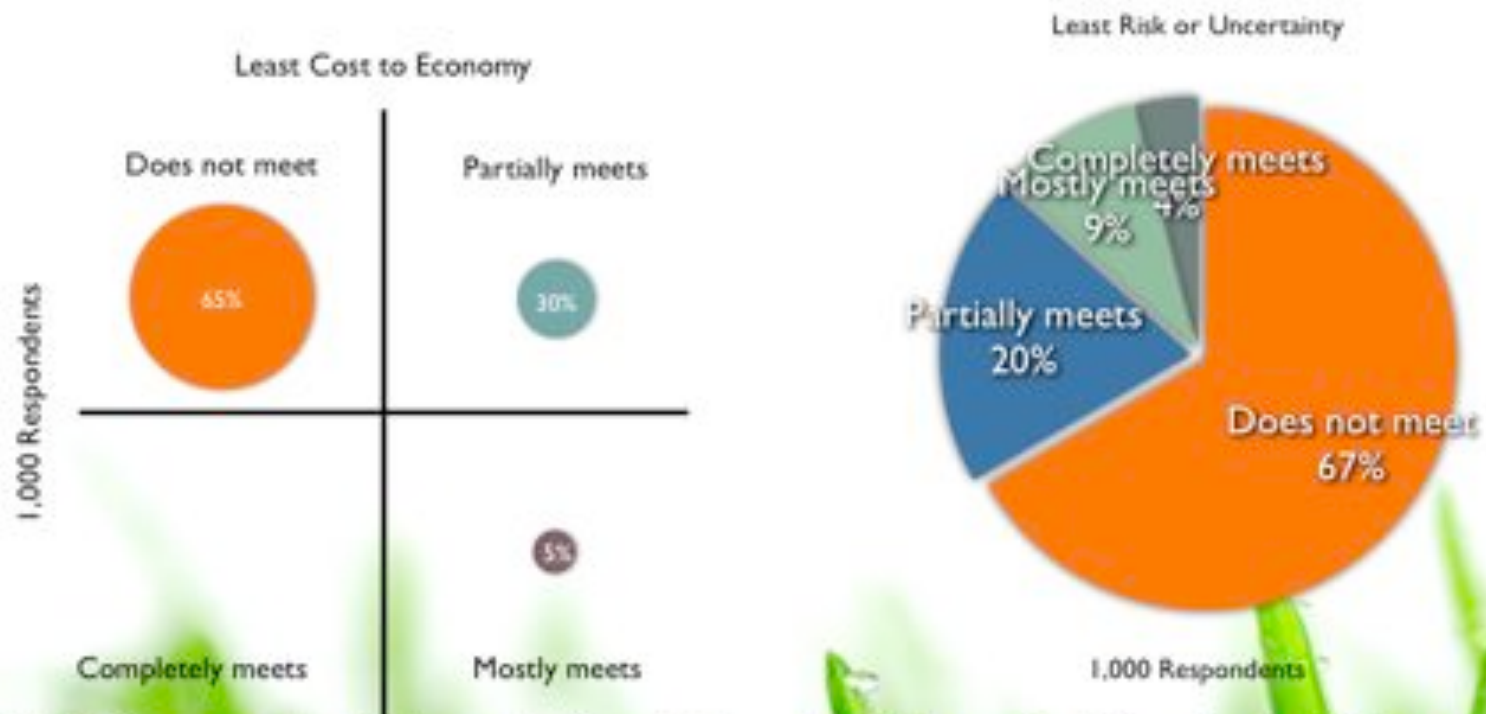
Q1. How do you rate the DRAFT IRP2010 fulfillment of criteria...

0 1 2 **3** 4 5 Why? _____

(Where 0 is NO fulfillment, and 5 is COMPLETE fulfillment)



Questionnaire Format



Of 1,000 Respondents to criteria of Greatest Localization Potential...

- 45% Does not meet
- 37% Partially meets
- 25% Mostly meets
- 10% Completely meets
- 3% No response

'Private' Participation

- Minutes
- One way traffic
- IRP Technical Advisory panel lacks representation
 - Environmental
 - Water
 - Gender Equity
 - Local Economic Development
 - Youth

Table 3. Score for each criteria

Plans	CO ₂ emissions	Price	Water	Uncertainty	Localisation potential	Regional development	TOTAL
Base Case 0.0	-	21.74	-	2.73	-	6.08	30.54
Emission 1.0	12.41	18.61	5.24	16.14	6.47	6.08	64.94
Emission 2.0	9.43	20.61	2.53	16.14	6.47	6.08	61.25
Emission 3.0	21.74	-	10.87	19.57	6.47	-	58.65
Carbon Tax 0.0	11.50	18.41	3.50	19.26	6.47	2.77	61.91
Region Development 0.0	0.67	21.53	0.37	-	-	10.87	33.44
Enhanced DSM	1.54	20.85	0.94	3.04	-	6.08	32.45
Balanced	10.46	20.24	2.74	16.71	11.02	1.85	63.01
Revised Balance	11.01	19.33	2.92	16.32	15.22	8.85	73.66
Swing Weighting (/100)	21.74	21.74	10.87	19.57	15.22	10.87	100.00

Energy Independence
6.08



CDP Water Disclosure 2010 Global Report

On behalf of 137 investors with assets of US\$16 trillion



high
on
ess

ending
ity

rel,
ic
ns.
er-

as in

Water is a current, not a future, corporate issue.

The immediacy of water as a corporate issue was highlighted by the timescales associated with water-related risks, with more than half of the risks identified across all categories (physical, regulatory and 'other') being classified as either current or near-term (1-5 years), and **39% of companies already having experienced detrimental impacts**. These impacts fall into the broad categories of disruption to operations from drought or flooding (in one case resulting in \$100 million in remediation costs), declining water quality necessitating costly on-site pre-treatment, increases in water prices, and fines and litigation relating to pollution incidents.



The Revised Balanced Scenario follows the original decision that transmission infrastructure would not be included in the cost determination for different projects. However it is clear that the regional options are significantly impacted by the transmission infrastructure required to transport the power to South Africa. While there are debates regarding the actual costs for this infrastructure and what proportion would be met by domestic consumers, it is evident that options further from South Africa's borders should be penalised relative to closer options. In this regard, the import hydro options

- b) The import hydro options do not require an allocation decision since these involve IPPs and require an immediate assignment by the Minister of the Single Buyer Officer as the designated Buyer to kick off the programmes. The transmission infrastructure is critical to the success of these programmes and should be initiated immediately, specifically the decisions around infrastructure required in neighbouring countries and the risk allocation for the financing of this infrastructure.



Table 16. Potential learning rates

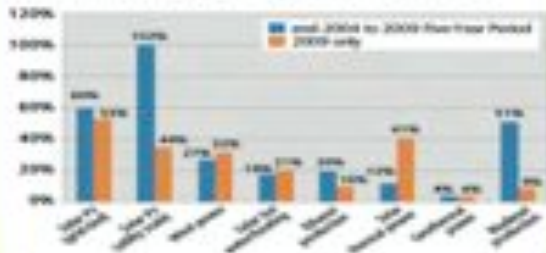
Technology options	Learning rate for each doubling in capacity (%)
Wind (onshore)	7
Photo-voltaics	18
CSP	10
Biomass	5
IGCC	3
Nuclear III	3

Source: International Energy Agency, Energy Technology Perspectives 2008, Table 5.3. (p 207)

Learning rates

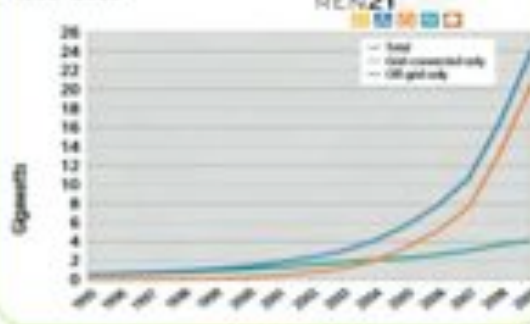
None of the current scenarios include learning rates for technology options. A test case has yet to be run to determine the impact of learning rates on the optimal choices for the IRP. The following table includes some of the potential learning for specific technologies suggested by the International Energy Agency (IEA), based on the decrease in costs for each technology for every doubling in the global capacity for the technology.

Figure 2. Average Annual Growth Rates of Renewable Energy Capacity, mid-2004 to 2009



TIC

Figure 7. Solar PV, Existing World Capacity, 1995-2009



TAC

No!

REFIT Pref Tech	IRP 2010	Alternative
Wind	700 MW	650 MW
CSP	200 MW	150 MW
Landfill Gas	100 MW	125 MW
Small Hydro	25 MW	25 MW
BioGas	-	5 MW
Biomass Solid	-	5 MW
pV Solar	-	50 MW

More Electricity less Rands

■ Alternative ■ IRP 2010

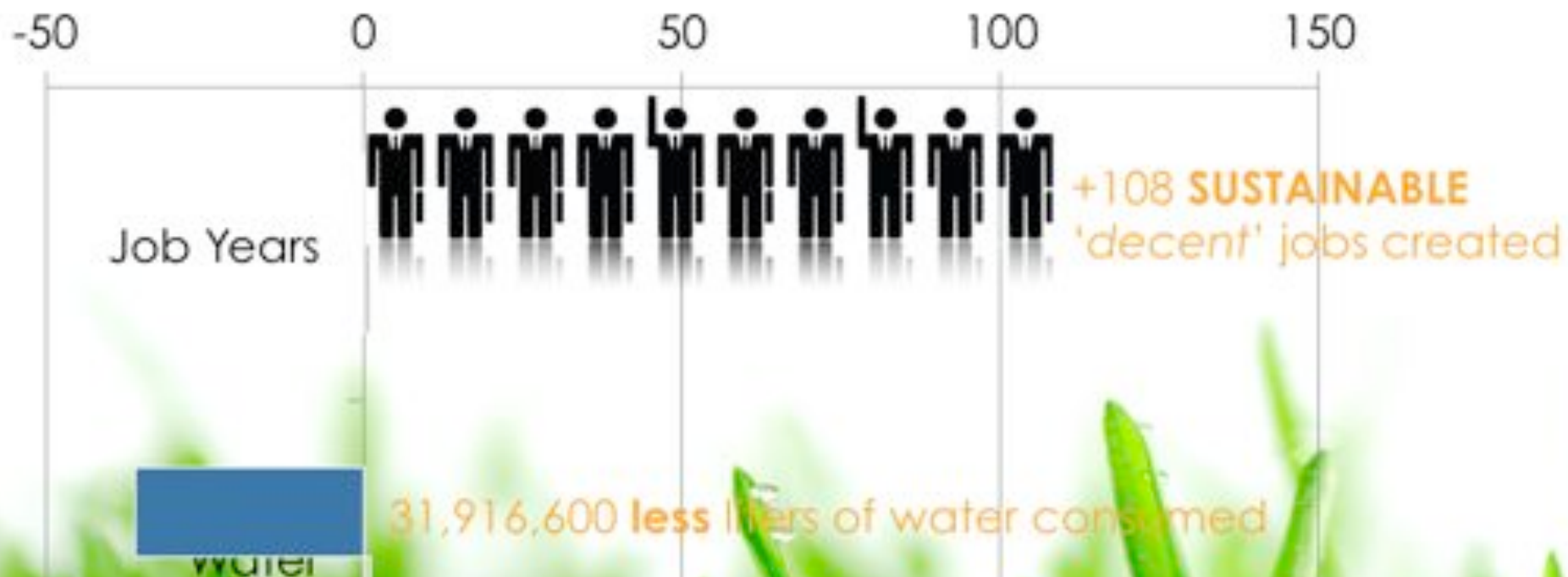
Millions



Cost to Eskom

More jobs less H₂O

■ Alternative ■ IRP 2010



NERSA Scorecard

<i>"The Regulations prescribe that the selection criteria to be created by the Energy Regulator should consider the following:"</i>	IRP 2010	Alternative <i>A+</i>
compliance with the integrated resource plan and <u>the preferred technologies</u>	4/7 57%	7/7 100%
preference for a plant technology and location that contributes <u>to local economic development</u>		over 100 more 'decent' jobs
preference for <u>small distributed generators</u> over centralized generators		wider geographic diversity
preference for generators that can be <u>commissioned in the shortest time</u>		shorter aggregate lead time

Knowledge speaks, wisdom listens

- Jimi Hendrix

