Rethinking Economic Regulation of Infrastructure Industries

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Outline

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- Performance of infrastructure regulators
- The case of electricity: the issues that consumers really care about….
  - Prices
  - Reliability of supply
- Regulatory reform proposals




Evaluating regulatory systems

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Regulatory governance

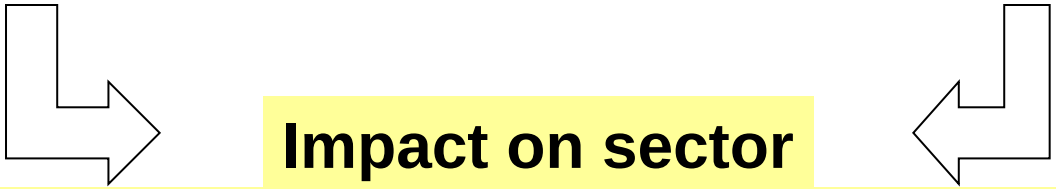
Legal design and institutional arrangements of regulatory system and processes of regulatory decision-making

Regulatory substance

Content of regulation
licences, tariffs
supply & service standards

Credibility, legitimacy, and transparency of regulatory decisions

Quality & robustness of regulatory decisions



Impact on sector

Competitively priced, reliable infrastructure services

Financial viability, new investment

Adapted from Brown, Stern, Tenenbaum & Gencer, 2006

Impact of infrastructure regulation in South Africa?

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Electricity *[see later slides]*

- Power outages between 2006-2008
- Supply security still threatened by
  - Insufficient availability of generation capacity
  - Poorly maintained networks
- Prices have risen steeply to unprecedented levels

ICT *[Research ICT Africa]*

- South Africa slipping down international & African rankings in prices for landline and mobile telephony and in broadband access, quality and prices

Ports *[Port regulator benchmark study]*

- Rates are higher than international benchmarks

SA Electricity Prices (1970-2012)

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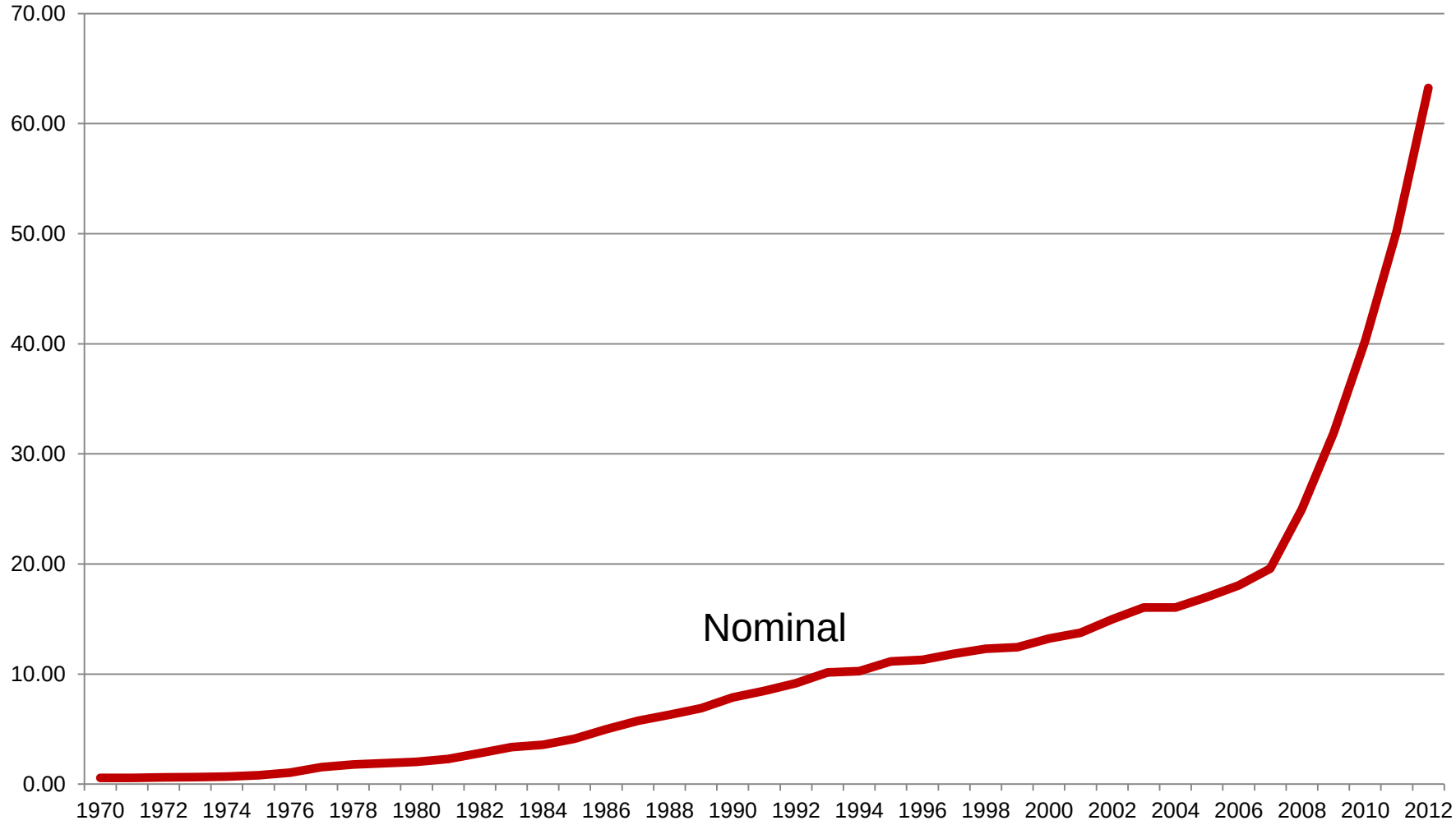

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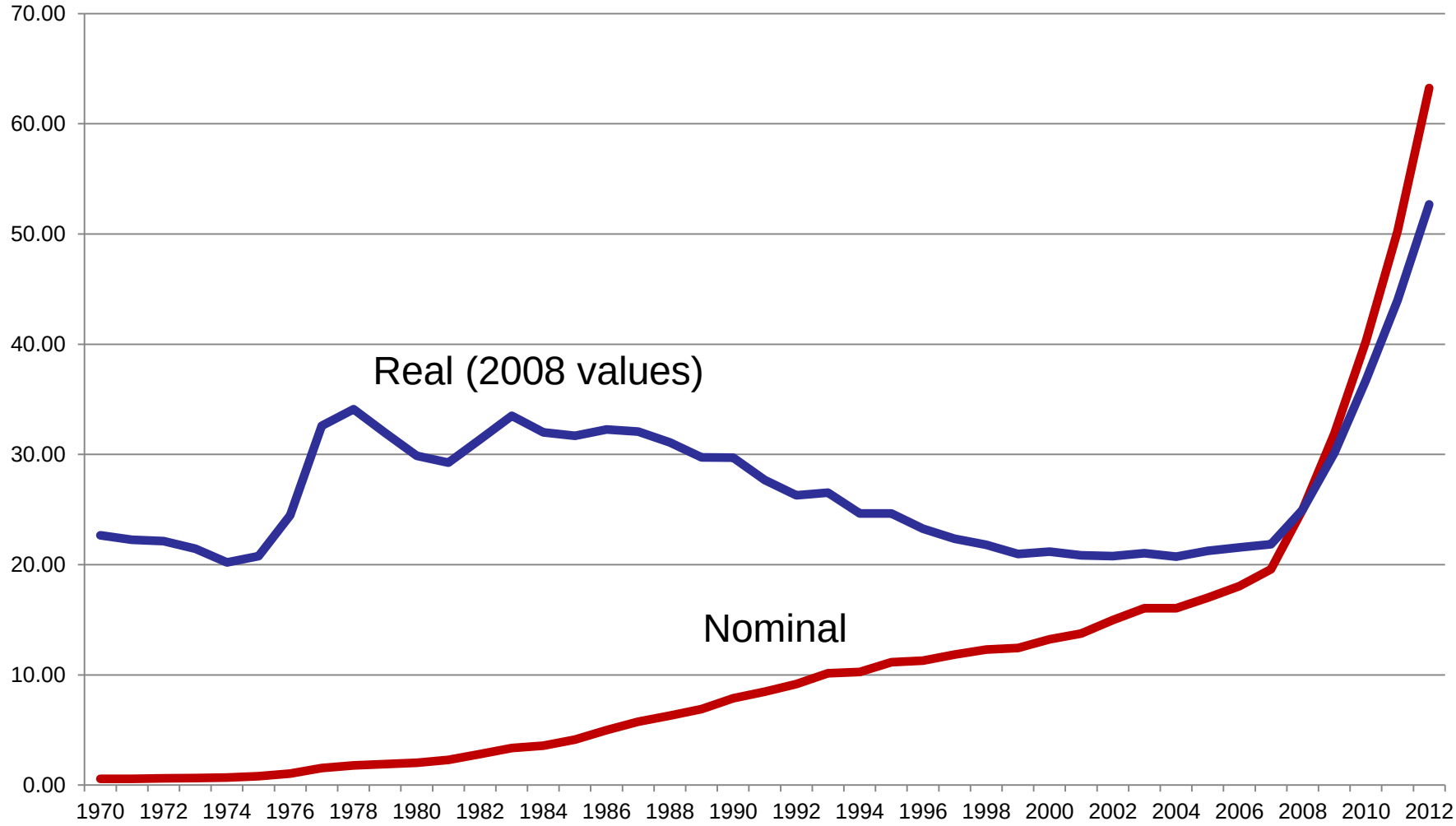

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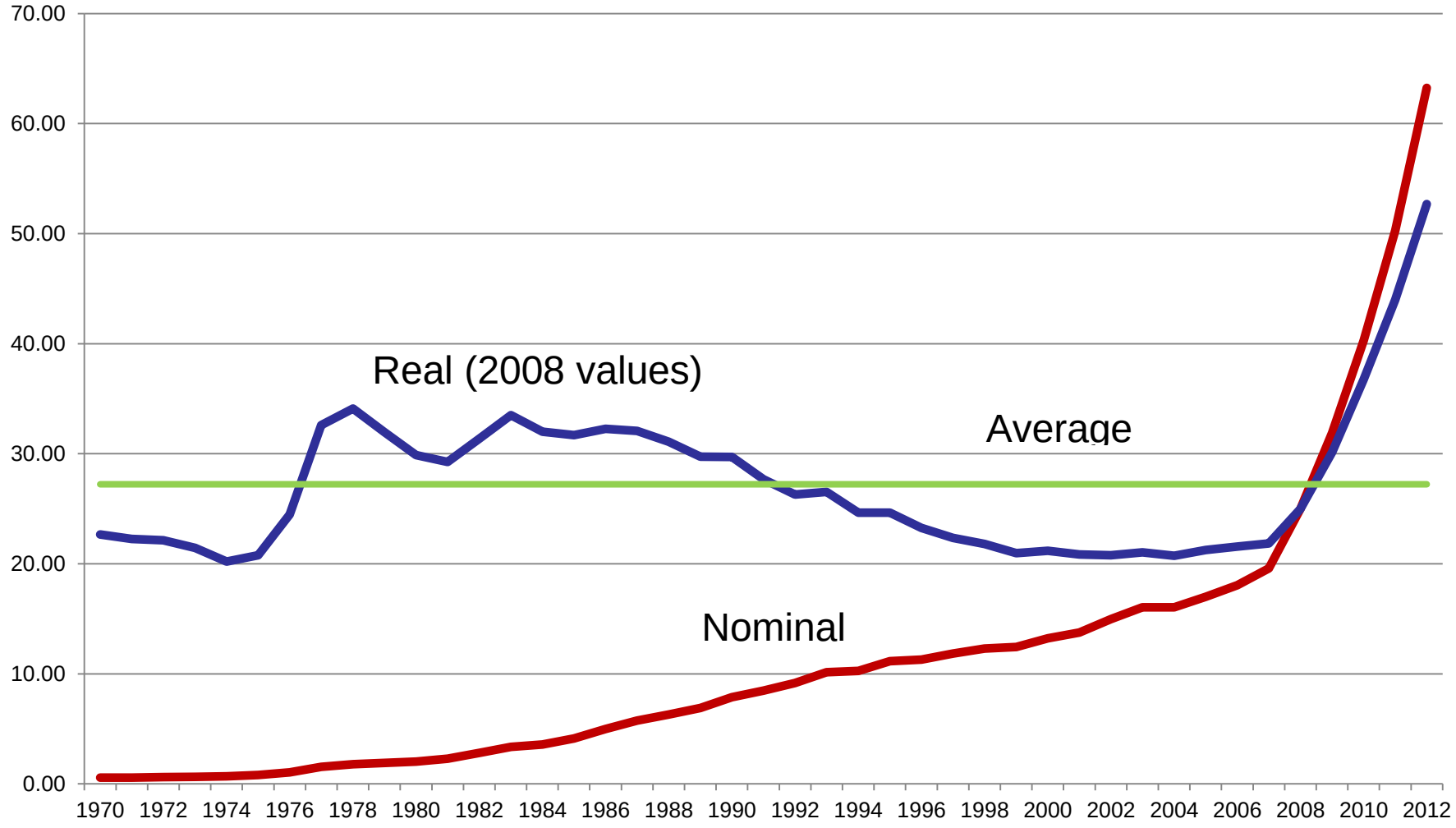
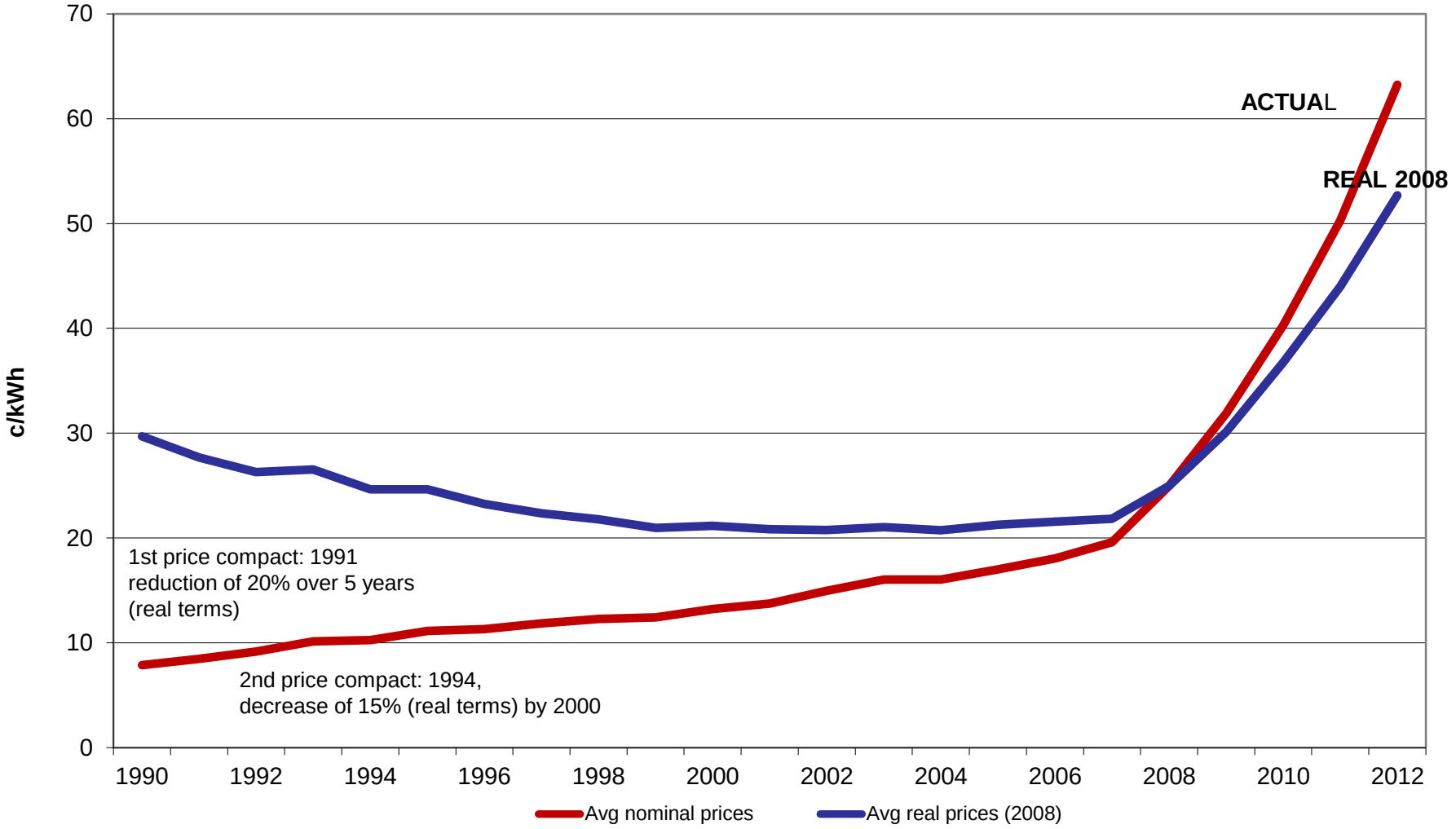


Why are prices now more than double (and soon treble) historical average (in real terms)

SA electricity regulatory periods (1990-2012)



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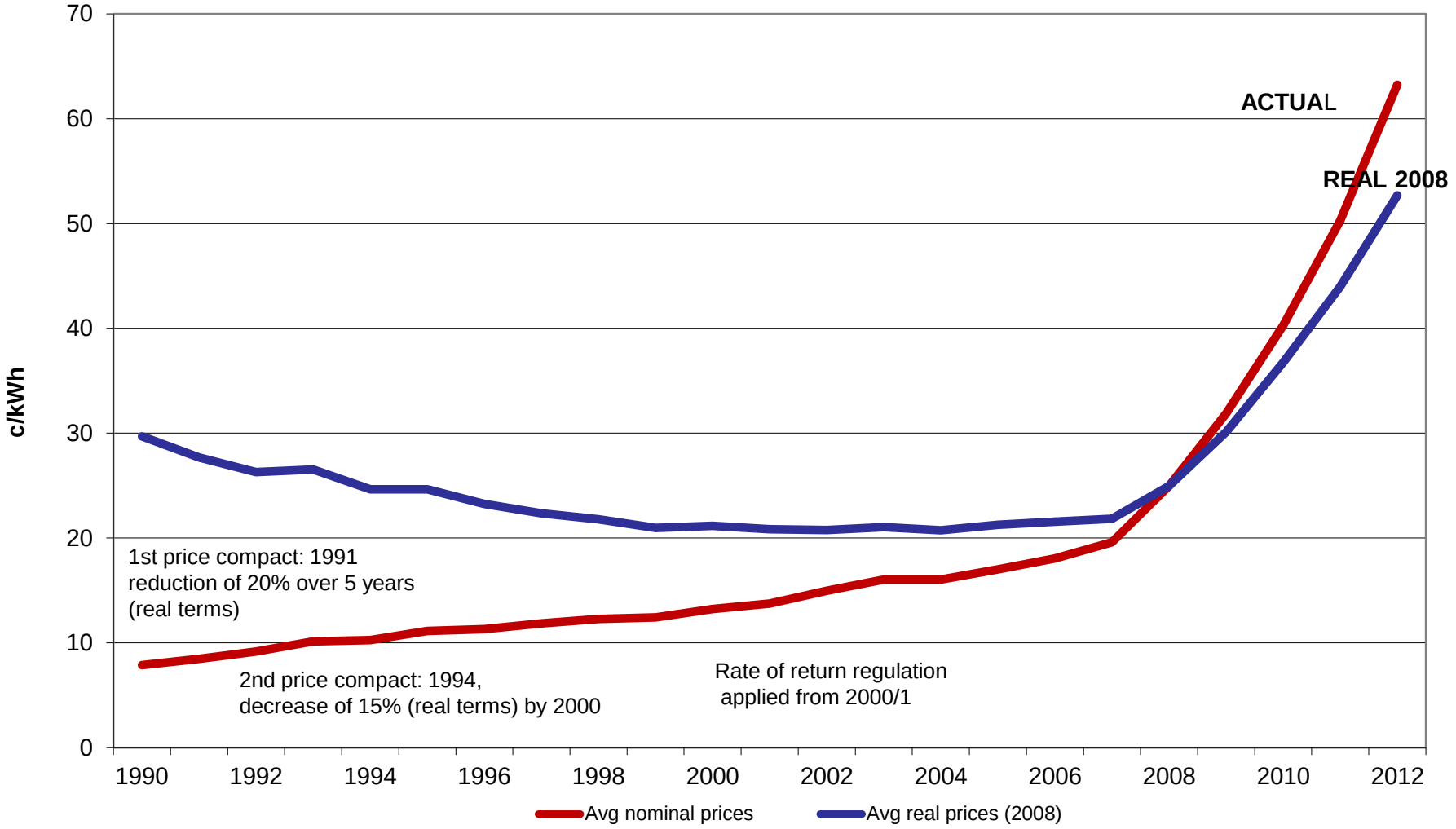

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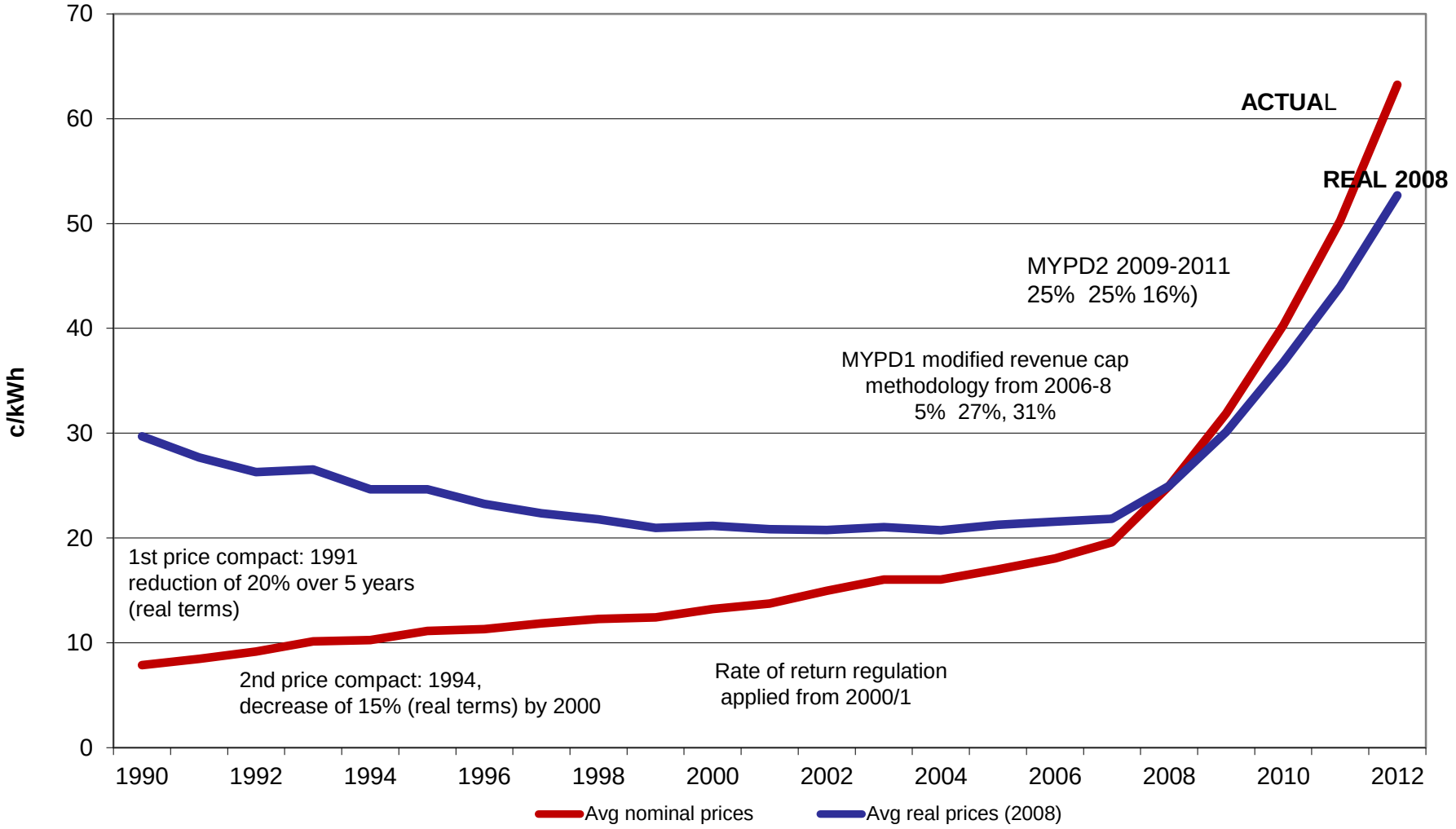

Price increases driven in part by increased coal costs and mainly by increases in financing costs for new generation assets (but still high!!)

SA electricity regulatory periods (1990-2012)

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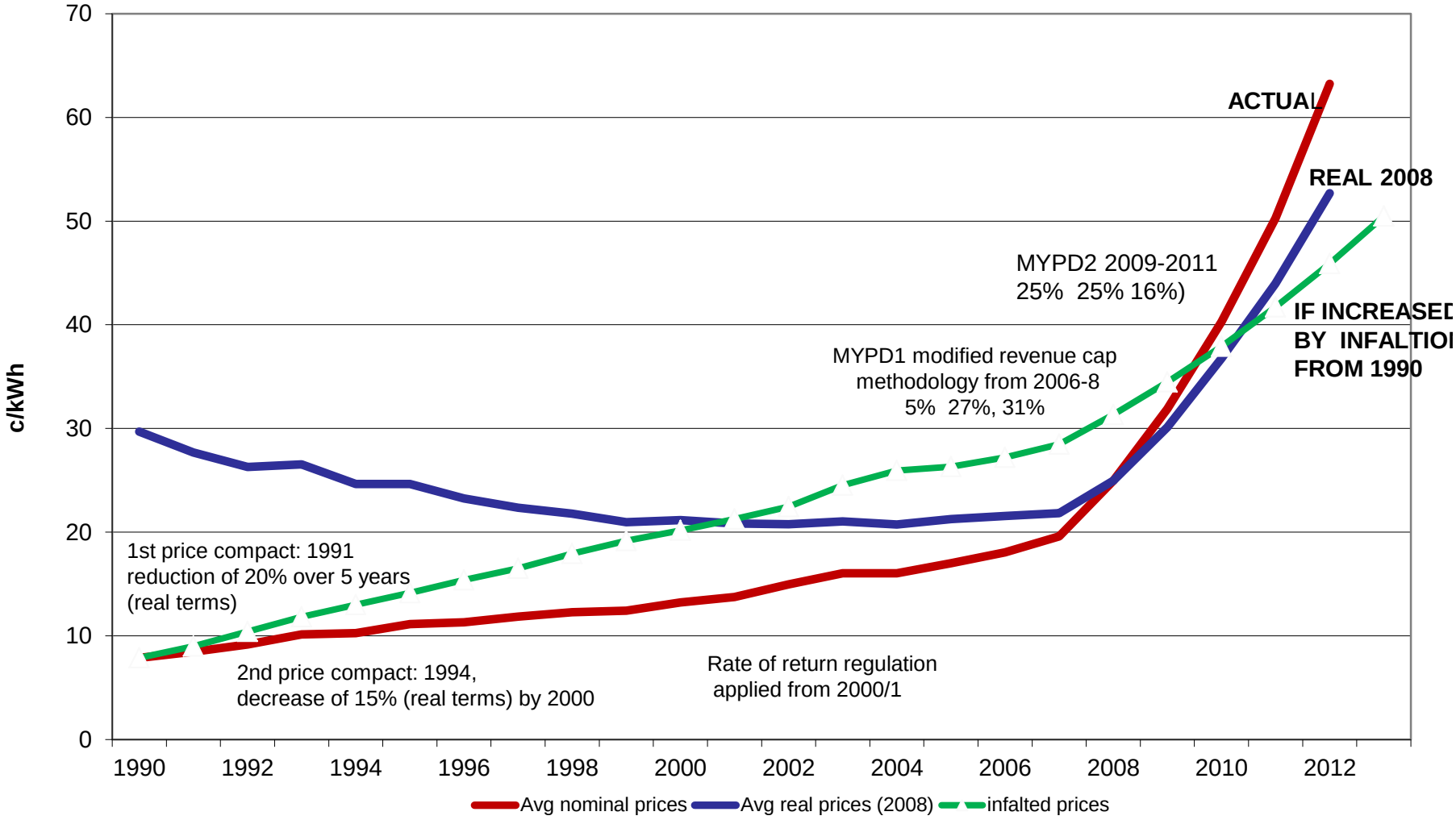

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Pick a number, any number: the MYPD1 record

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2007/8 Eskom electricity price increase

• Feb 2006	Original Nersa MYPD decision	5.9%
• April 2007	Eskom applies for revision	18.7%
• Dec 2007	Nersa approves	14.2%
• March 2008	Eskom applies for 2nd revision	60.0%
• June 2008	Nersa approves	27.5%
ACTUAL PRICE INCREASE FOR 2007/8		8.5%

2008/9 Eskom electricity price increase

• Feb 2006	Original Nersa MYPD1 decision	6.2%
• May 2009	Eskom applies for revision	34.0%
• June 2009	Nersa approves	31.1%
ACTUAL PRICE INCREASE FOR 2008/9		27.5%

In 2007/8 Eskom changes its request for price increases from 5.9% to 18.7% to 60% !!

MYPD2 (2010/11/12/13) also radically revised

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- Sept 2009 Eskom gives notice that it intends to apply for an increase of **45%** in each year
- Nov 2009 Eskom reduces request to **35%** after consultation with NT and SALGA
- April 2010 Nersa approves average of **25%** for each year
- Feb 2012 Eskom applies for a reduction to **16%**
- March 2012 Nersa approves reduction to **16%**
- May 2012 Eskom reports “profit” of R18.4 billion

The MYPD was meant to create certainty
It has achieved the exact opposite

Neither Eskom nor Nersa
appear to be able to predict or assess costs accurately

Medupi and Kusile cost & time overruns

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- Approved project costs- excluding capitalised interest

  Medupi: R 98 900 million US$ 2770 / kW

  Kusile: R121 000 million US$ 3360 / kW

- Commissioning dates slip by 2-3 years

  Medupi *(work starts May 2007)*

  – Estimated in Nov 2007 1st unit Apr-11; last unit Jan-15

  – Estimated in July 2012 1st unit Aug-13; last unit May-17

  Kusile (Work starts April 2008)

  – Estimated May-07 1st unit Mar-12; last unit Dec-15

  – Estimated Jul-12 1st unit Dec-14; last unit Aug-18

Interest during construction grows with delays

What are final costs, including contract revisions?
Amongst most expensive coal-fired power stations in world?

How does Nersa determine electricity tariffs?

Simplifying

Allowed revenue	=	O&M
	+	depreciation
	+	rate of return *(WACC)* on reg. assets
	+	taxes
	+	pass through of power purchase cost
	+	other costs (R&D, IDM, SQI)
	+/-	annual reconciliation
Allowed average tariff	=	allowed revenue / predicted kWh

Nothing wrong in principle with this cost of service methodology
Eskom needs to recover prudently and efficiently incurred operating and maintenance costs plus consumption of assets (depreciation) plus its cost of capital in financing capital expansion

But methodology not appropriately applied

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This may not be an entirely fair criticism – but

Nersa appears to change its assumptions in order to get the tariff increase it judges to be acceptable

Examples

Phasing in revaluation of assets, different assumptions in the WACC calculation, different depreciation assumptions

Another example

When Nersa accepted Eskom's extraordinary request to lower the increase for 2012/13 from 25.9% to 16% after the president had said something had to be done about high electricity increases, it said this was possible through "accepting a change in the regulatory clearing account and the re-phasing of returns".

Security of electricity supply also unsatisfactory

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- Western Cape blackouts in late 2005 / early 2006 after generator failures at Cape Town's Koeberg nuclear power plant, coupled with transmission line failures
- First national load shedding on18 January 2007 when unprecedented number of coal generation units fail (boiler tube ruptures, etc)
- 9 major load shedding events Oct - Dec 2007
- Major load shedding from 10 Jan 2008
- Mines shut down on 24 January 2008 to prevent system collapse
  insufficient capacity as generator units fail
  coupled with coal supplies running out!
- Between January and July 2008: 1000 GWh electricity demand interrupted; approximately 5 – 6 % less electricity consumed than predicted in 2008.

Electricity supply/ demand still very tight and risk of further blackouts is high

Actual system reserve margin 2012

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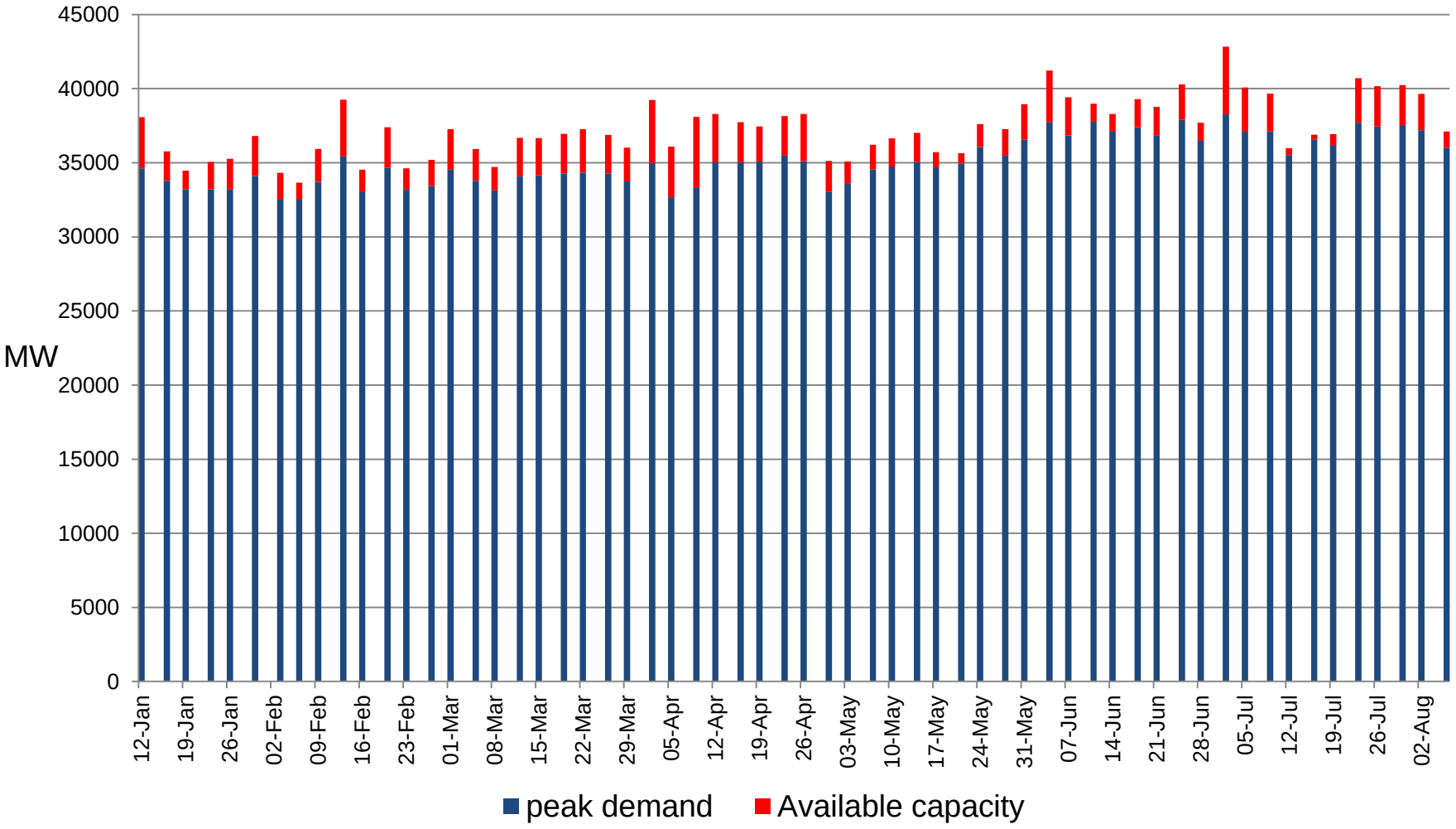
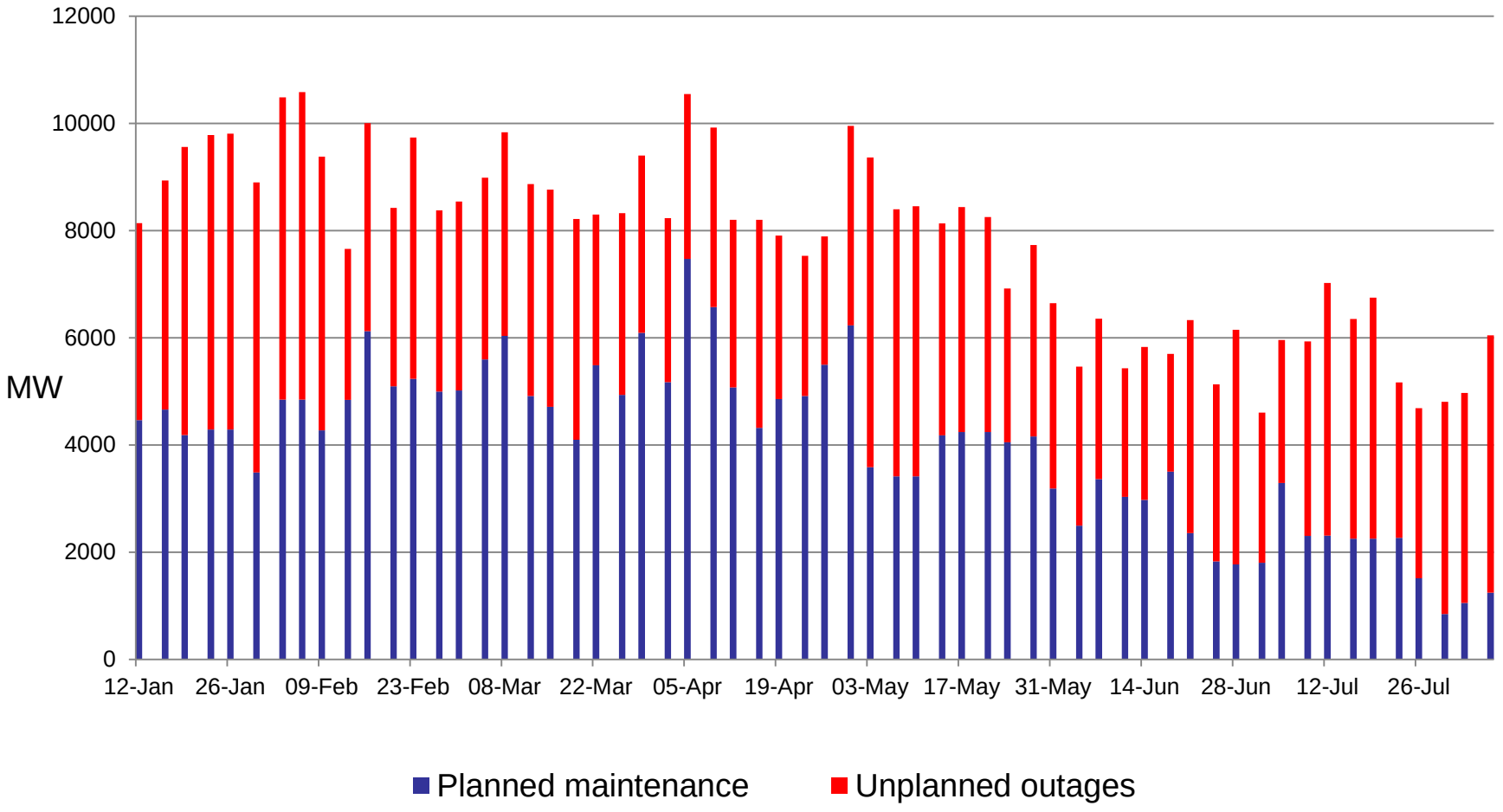


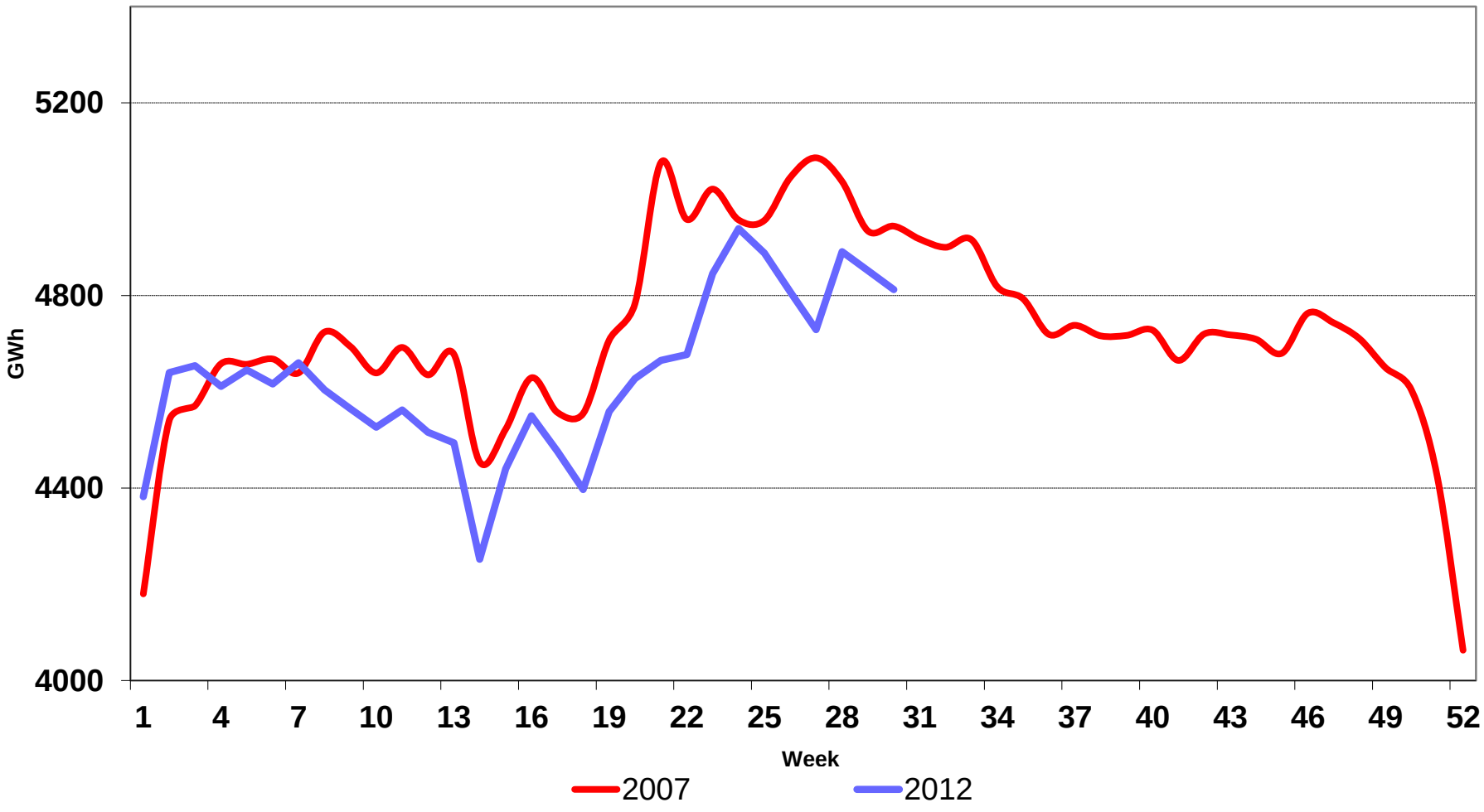
Source: Eskom System Status Bulletins

Power generation capacity not in service



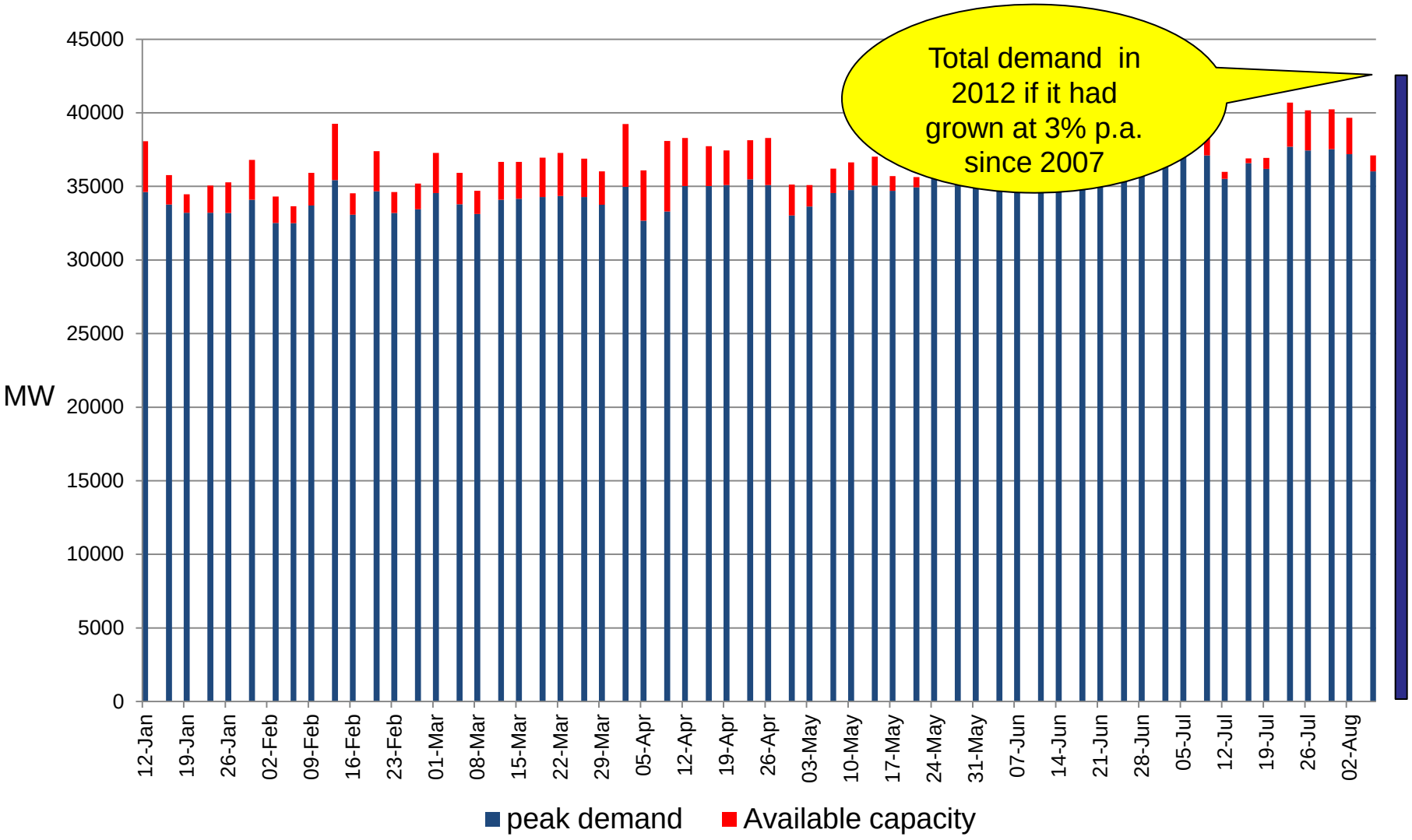
Source: Eskom System Status Bulletins

Electricity consumption has stagnated for 5 years



Source: Eskom Medium Term Generation Adequacy Reports

Eskom could not have supplied normal growth



Electricity Distribution Industry in trouble

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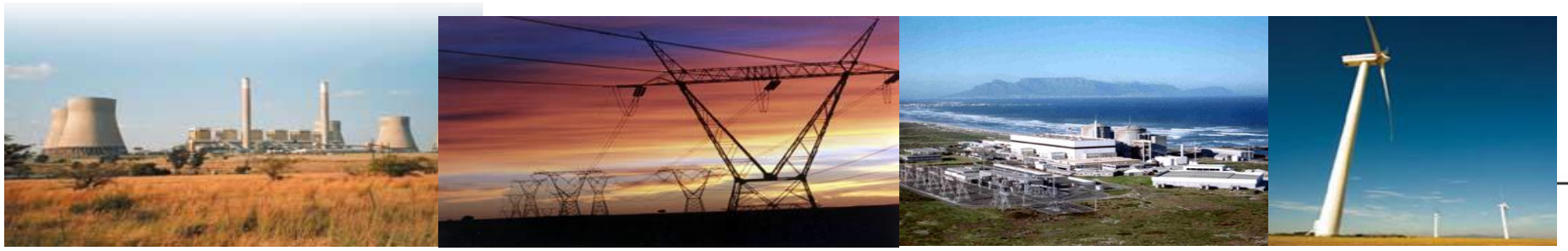
- REDs are dead (2010 Cabinet decision)
  - The Constitution specifies that electricity distribution is a local government function and even though many municipalities entered into voluntary agreements to proceed with restructuring, they demurred when faced with the prospect of giving up their most valuable assets and revenue streams. Constitutional amendment won't pass
- EDI Holding spent R1.2 billion between 2006 and 2010
  - No restructuring but valuable work done on ring-fencing, asset registers and maintenance plans (ADAM)
  - EDI Holding dissolved and experience staff now in a "technical Diaspora"
- Maintenance backlog now R35 billion and growing at a minimum of R2.5 Billion per annum. Average age of network approaching 50 years
- Increasing evidence of grid failures
- But no evidence of urgency in tackling problem

Cost of power crisis is higher than generally acknowledged

- Lost output, investment constraints, reduced economic growth, less employment and income, reduced exports, increased fuel imports, increased pressure on balance of payments & current account deficit, cycles of currency depreciation, imported inflation, higher interest rates, reduced economic growth……
- Cost of unserved energy (value of lost load) is MUCH higher than marginal cost of new generation
- And steep rises in electricity prices reduce competitiveness of South African mines and industry



Regulatory reform clearly needed in power sector

- Rate-of-return regulation based on depreciated historical asset valuation in the context of large, lumpy, intermittent capital investments and high inflation will lead to peaks and troughs in electricity prices, but the transition to replacement cost accounting is resulting in unacceptably sharp price increases
- Greater price certainty needed and price spikes and dips need to be smoothed
- Insufficient controls over large capital expenditure is at the heart of problem (biggest cost driver)
  - Better monitoring and scrutiny of large capital projects with SOE Boards and managers held to account for cost and time overruns
  - Commission of enquiry into Medupi and Kusile cost overruns
  - Different approach to power planning and investment
  - More diversity, more innovation, incremental rather mega projects, turnkey IPP investments and more competition in power generation needed

Pricing reform

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- Review 2008 Pricing Policy
  - Regulated electricity prices should move in a narrower band around long term sustainable average
  - Implies that the state should take out greater profits in the form of dividends during periods of low investment and would need to inject equity in periods of high investment
  - Core regulatory accounting principles should not be abandoned:

    for utility to provide an adequate service it needs to be financially viable and prices have (on average) to be cost-reflective. Hard to justify National Treasury subsidizing electricity (and telecom) sectors over long term (except targeted support mechanisms for vulnerable households)

Regulators role in security of supply

- Electricity consumers value security of supply above all else
- Current system of non-dynamic IRPs, Ministerial determinations and ad-hoc procurement via Doe & NT PPP not robust
- The Electricity Regulation Act says that Nersa should facilitate investment in the sector
  - Adequacy of supply requires timely planning, procurement and contracting of generation capacity
  - Functions of generation expansion planning, allocation of new build opportunities (between Eskom and IPPs), procurement and contracting need to be clearly allocated and institutional capacity built
  - ISMO and Electricity Regulation Amendment Bills will hopefully accomplish this, although there is danger that too rigid a system of “approved” plans and procurement and licensing dependant on Ministerial determinations could be cumbersome and could inhibit innovation
  - Nersa ISMO licence could contain requirements to report on adequacy of supply and Nersa can act as early warning system if insufficient investment

Also need to fix the EDI (Nersa can assist)

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- Adopt 80:20 principle. Focus on top 12 munics that provide nearly 80% of municipal electricity distribution
  - Ring-fencing, asset registers, maintenance plans, ADAM, RoR regulation
  - Transfer bits of Eskom grid in their boundaries to these muncis
- Service deliver agreements between small ailing municipal distributors and Eskom or larger towns/cities
  - E.g. Centlec around Manguang; requests to Eskom
- Ensure maintenance backlog doesn't grow
  - **Nersa** has powers to establish national norms and standards, including ring-fencing of municipal electricity businesses and minimum maintenance levels.
  - **Nersa** also approves annual electricity tariff increases based on costs including maintenance. Municipalities that fail to spend allocated budgets could in subsequent years face revenue claw-backs and lower tariff increases.
- Special 10 year programme to eliminate maintenance backlog
  - Conditional fiscal grants via DoE INEP with close monitoring & auditing

In conclusion……..

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- The fact that regulation of electricity prices and security of supply have been less than perfect does not mean that independent regulatory agencies should be abolished
- No guarantee that government departments would do a better job
- Experience across Africa (and other regions) has shown that independent regulators enable a more transparent debate around infrastructure pricing and service quality
  - Better understanding by stakeholders of how cost-reflective tariffs should be determined
  - Arbitrary administrative action less likely
  - Regulators can be held to account

Market reforms needed for more competition, transparency and accountability in large infrastructure investments

Regulatory reforms needed for steadier prices and ensuring adequacy of supply

The Management Programme in Infrastructure Reform & Regulation (MIR) is an emerging centre of excellence and expertise in Africa. It is committed to enhancing knowledge and capacity to manage the reform and regulation of the electricity, gas, telecommunications, water and transport industries in support of sustainable development.

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