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BRIEFING ON THE SOUTH AFRICAN INDEPENDENT POWER PRODUCERS PROCUREMENT PROGRAMME

23 August 2016

CONTENT

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- Integrated Resources Plan
- Procurement Programme Overview
- Progress to date
  - Renewable
    - Large
    - Smalls
    - Solar Parks
    - Solar Water Heaters
  - Non-Renewable
    - Cogen
    - Coal
    - Gas
    - Peakers
  - Regional Cooperation
  - Advisory
    - Grid
    - Planning, Legislative and Regulatory Programme
    - Economic Development

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INTEGRATED RESOURCE PLAN (IRP)

IRP AND DETERMINATIONS

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	New build options							
	Coal	Nuclear	Import hydro	Gas – CCGT	Peak – OCGT	Wind	CSP	Solar PV
	MW	MW	MW	MW	MW	MW	MW	MW
2010	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	300
2013	0	0	0	0	0	0	0	300
2014	500	0	0	0	0	400	0	300
2015	500	0	0	0	0	400	0	300
2016	0	0	0	0	0	400	100	300
2017	0	0	0	0	0	400	100	300
2018	0	0	0	0	0	400	100	300
2019	250	0	0	237	0	400	100	300
2020	250	0	0	237	0	400	100	300
2021	250	0	0	237	0	400	100	300
2022	250	0	1 143	0	805	400	100	300
2023	250	1 600	1 183	0	805	400	100	300
2024	250	1 600	283	0	0	800	100	300
2025	250	1 600	0	0	805	1 600	100	1 000
2026	1 000	1 600	0	0	0	400	0	500
2027	250	0	0	0	0	1 600	0	500
2028	1 000	1 600	0	474	690	0	0	500
2029	250	1 600	0	237	805	0	0	1 000
2030	1 000	0	0	948	0	0	0	1 000
Total	6 250	9 600	2 609	2 370	3 910	8 400	1 000	8 400

- RE First Determination: 3725 MW Aug 2011
- RE Second Determination: 3200 MW Dec 2012
- RE Third Determination: 6300 MW Apr 2015
- Coal from Cross Border: 3750 MW Apr 2016
- Nuclear Determination: 9600 MW Dec 2015
- Coal Determination: 2500 MW Dec 2012
- Imported Hydro Determination: 2 609 MW Dec 2012
- Gas Determination: 3126 MW Aug 2015

IRP

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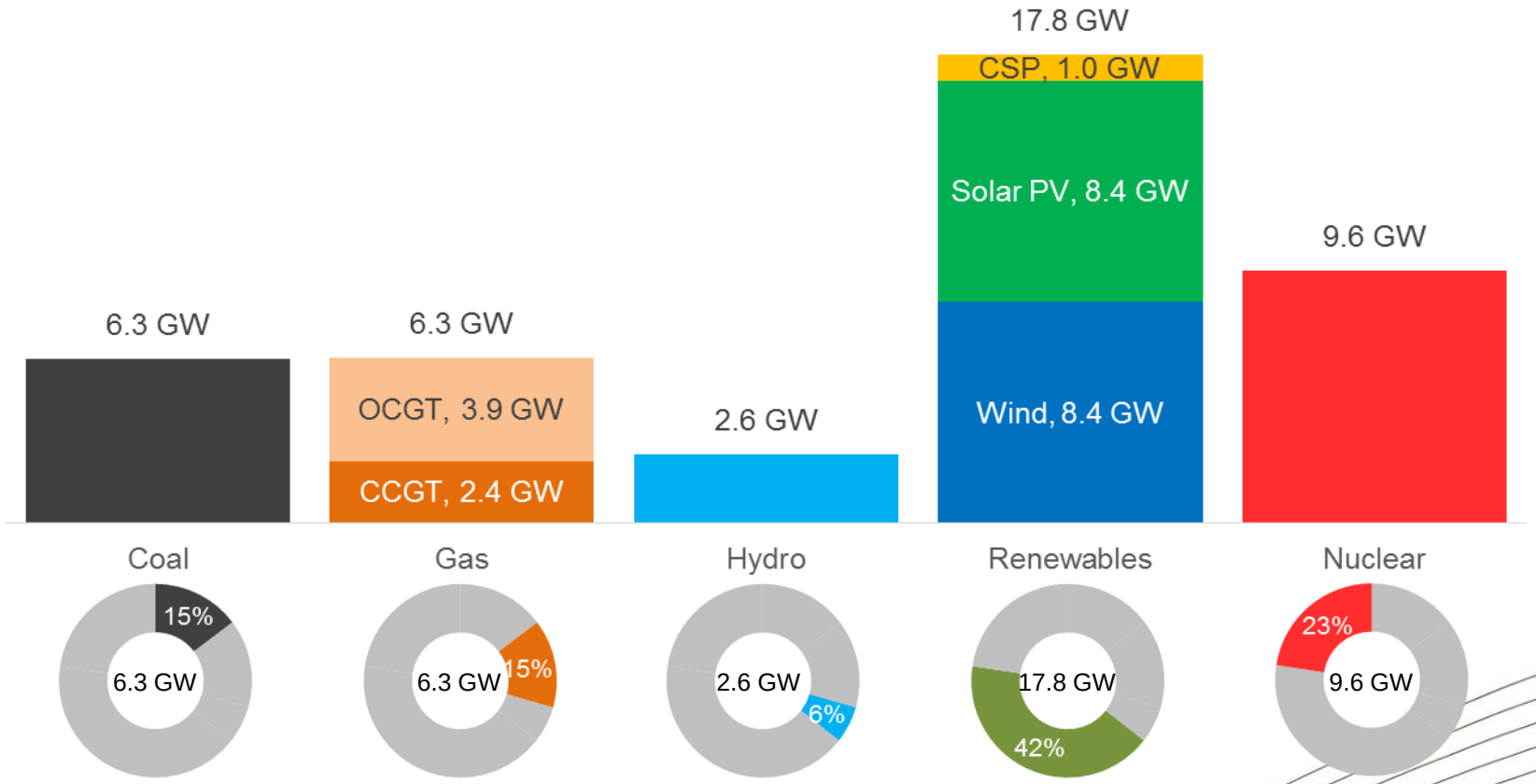
Policy Adjusted IRP
Total additional capacity (without committed until 2030 in GW)



DETERMINATIONS

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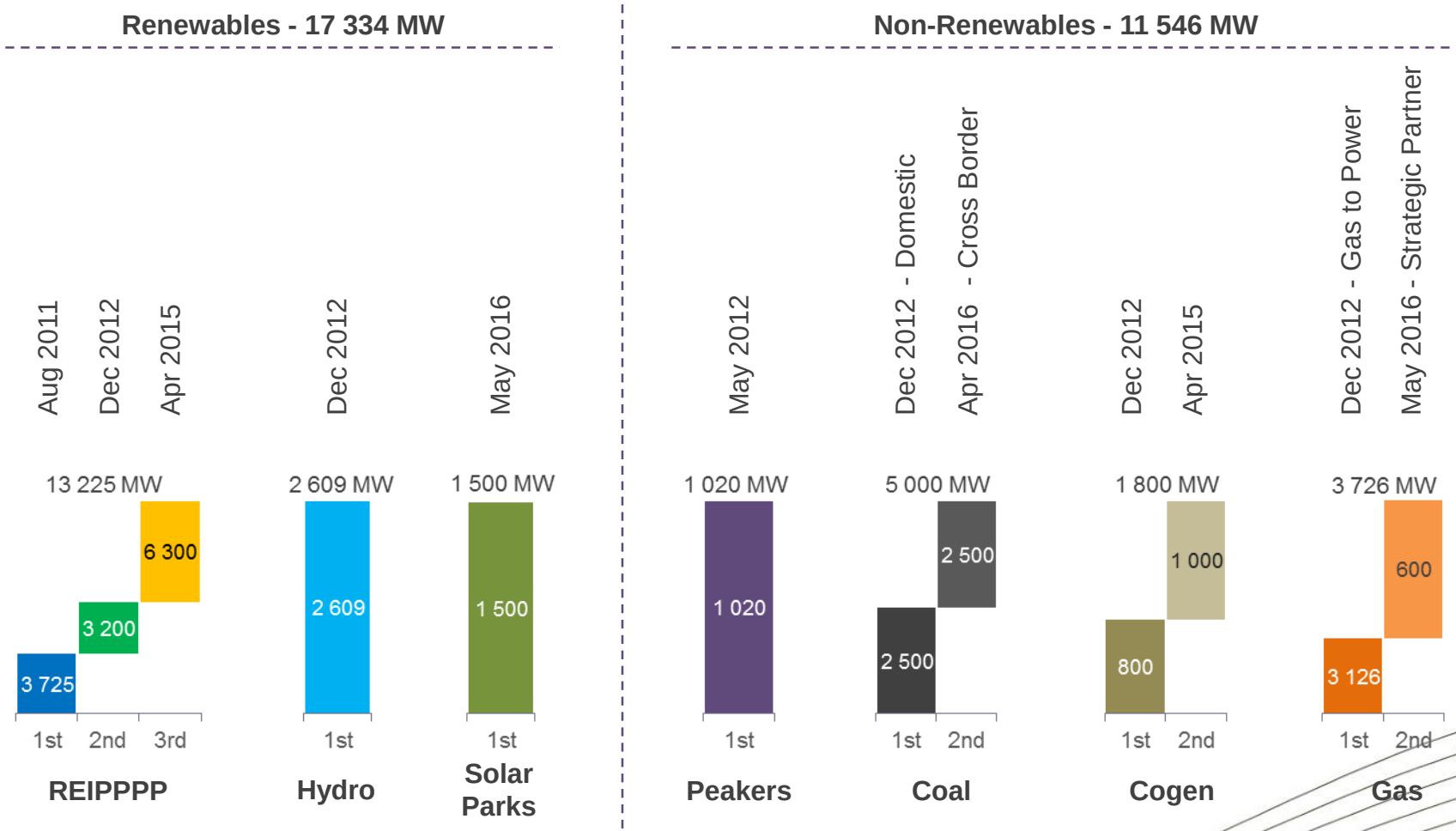

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PROCUREMENT PROGRAMME OVERVIEW

IPP PROCUREMENT PROGRAMMES

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Renewable Energy (13 225 MW)	○ Large programme – implemented in different phases (12 825 MW) ○ Small programme – Implemented in different phases (400 MW)
Coal Programme (2 500 MW)	○ The programme will be implemented in two phases. Phase 1 with 900 MW
Cogeneration (1800 MW)	○ Phase one – brownfield projects ○ Phase two – greenfield project
Gas to Power (3 126 MW)	○ Preliminary Information Memorandum* ○ Request for pre- qualification ○ Request for proposals

* Not procurement but information

IPP PROCUREMENT PROGRAMMES

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Cross Border Coal (3 750 MW)	○ The programme will be implemented across a number of phases and countries
Solar Park (1 500 MW	○ Increased local content, and promote industrialisation in the Northern Cape ○ Sustainable jobs, youth development, BBBEE and SMMEs development
Gas Strategic Partner (600 MW)	○ The programme is envisaged to be the procurement of a Strategic Partner for the development and implementation of a 600 MW gas fired power generation project
Solar Water Heaters Replace and Repair Programme	○ Repair and Replacement of the installed Solar Water Heaters ○ Supported by the IPPs and other partners ○ Youth Programme with the objective to develop and empower youths.

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Progress to date

RENEWABLE ENERGY PROCUREMENT PROGRAMME

OVERVIEW OF **LARGE** REIPPPP BID WINDOWS

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To date there have been **6 Bid Windows** (BW) of the Large REIPPPP…

BW 1	BW 2	BW 3	BW 3.5	BW 4	BW Exp
• Submission date: 4 November 2011 • 28 preferred bidders (Announced 6 Dec 2011) • 1 425 MW of contracted capacity • Signature of the Agreements - 5 November 2012 • All achieved COD (1415MW)1	• Submission date: 5 March 2012 • 19 preferred bidders (Announced 21 May 2012) • 1 040 MW of contracted capacity • Signature of the Agreements - 9 May 2013 • 16 projects achieved COD (804MW)	• Submission date: 19 August 2013 • 17 preferred bidders (Announced 29 Oct 2013) • 1 457 MW of contracted capacity • Signature of the Agreements - From 11 December 2014 • BM project FC delayed due to fuel supply agreement dispute	• Submission date: 31 March 2014 • 2 preferred bidders (Announced 15 Dec 2014) • 200 MW CSP contracted capacity • Signature of the Agreements - expected Q2 2016/17 (One project signed , second one to be signed 23 Aug 16)	• Submission date: 18 August 2014 • 26 preferred bidders • 2 205 MW of contracted capacity (announced 13 preferred bidders on 16 April 2015 • 13 additional bidders were announced on 7 June 2015 • FC planned from Q2 2016/17) Eskom change in Tariff policy needs to be resolved)	• Submission date: 11 November 2015 • Evaluation delayed due to Eskom MYPD3 discussions • 106 Bids submitted • 1 800MW available for procurement • Announcement FY Q2 2016/17

LARGE REIPPPP

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Renewable Energy (13 225 MW)	3 Determinations: 3 725 MW in Aug 2011 3 200 MW in Dec 2012 6 300 MW in Aug 2015	REIPPP Large (12 852 MW)

Status

- **BW3.5 (200 MW CSP)** - Kathu Solar Park (100 MW) reached **Financial Close** on 12 May 2016
- **BW 4 (2 205 MW) Contract Finalisation**. Financial Close will be staggered
- **Expedited BW (1 800 MW)** Bid Submissions was on 11 Nov 2015; received 106 bids. **Evaluations complete**. Await BAC recommendation.

Next Steps

- **BW 3.5** Red Stone Project (100 MW) **Financial Close** in Q2 2016/17
  - FC delayed due to delays in issuing of BQs and
  - Eskom underestimating the Generation values presented to the IFC (had to obtain an amended approval in June 2016)
- **BW4 Financial Close** planned for Q2-Q3 2016/17 subject to
  - budget quotations being issued on time.
  - Increase in time and cost between CEL and BQ resolved
- **Expedited BW Bid Announcement** in Q2 2016/17. 1 800 MW with an option to increase to 2 773 MW.

LARGE REIPPPP

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Renewable Energy (13 225 MW)	3 Determinations: 3 725 MW in Aug 2011 3 200 MW in Dec 2012 6 300 MW in Aug 2015	**REIPPP Large (12 852 MW)**

Status

- **BW5 RFP review** in process incorporating extensive consultation (the dti, DWAS, DEA, NERSA and Eskom) to address market feedback, monitoring results and DOE concerns

Next Steps

- **BW 5** release of revised **RFP** in **Q3 2016/17**.
- Key **aspects of redesign** include:
  - definition of local community,
  - mechanisms to ensure early, efficient and equitable benefits to communities, and
  - local content / industrialisation regime. (iv) refinancing provisions

REIPPPP MONITORING

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- IPPs are required to submit report on quarterly basis on job creation, local content, management control, preferential procurement, enterprise development and SED
- The team also do spot checks to verify certain information. Each IPP project is required to keep all the supporting documents on site.
- Transaction Advisors were hired to conduct independent audit at the end of construction period.
- IPPs found to be non-compliant incur termination point and further given an opportunity to provide a ratification plan.
- Termination points can be levied against IPP if achievements in one element breach specific lower threshold repeatedly, or in several elements in the same quarter
- There is continuous improvement in monitoring due to learnings from the first projects.
- Ongoing engagement with Universities and local government improve the social impact of the programme

OVERVIEW OF **SMALL** REIPPPP BID WINDOWS

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To date there have been **4 Bid Windows** (BW) of the Small REIPPPP…

First Stage One	First Stage Two	Second Stage One	Second Stage Two
• Submission date: 14 October 2013 • 78 recommended bidders passed the First Stage 1 qualification round (awarded February 2014)	• Submission date: 3 November 2014 • 10 preferred bidders (Announced 4 Oct 2015) • 49 MW of contracted capacity • Signature of the Agreements - Q2 2016/17 • Earliest COD expected in Q3 2017/18	• Submission date: 31 March 2014 • 26 recommended bidders passed the First Stage 1 qualification round (awarded February 2015)	• Submission date: Q2 2016/17 - currently under evaluation • 51 MW allocated to bid window. • Announcement of preferred bidders to be in Q3 2016/17

SMALL REIPPPP

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Renewable Energy (13 225 MW)

3 Determinations:
3 725 MW in Aug 2011
3 200 MW in Dec 2012
6 300 MW in Aug 2015

REIPPP Small (400 MW)
Small Projects less than 5 MW

Status

- **BW First Stage Two** (1S2) (49 MW). Ten **Preferred Bidders announced** in October 2015.
- **BW Second Stage Two** (2S2) (51 MW). 20 bids received on 14 June 2016 is **under evaluation**
- **BW 3 (100 MW) RFP** being drafted

Next Steps

- FLC to consider Sec 66/70 application in August 2016
- **2S2 Bid Announcement** planned for Q3 2016/17
- **Simplification of Small REIPPPP** bid documents to provide for a less complex process:
  - Create opportunities for BEE, BBBEE
  - Release of **RFP** in Q3 2016/16

RENEWABLE ENERGY TECHNOLOGIES

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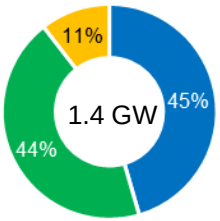
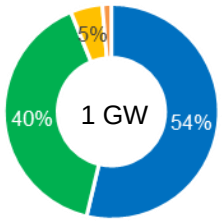
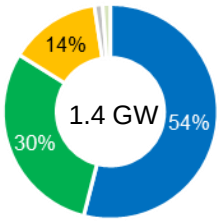
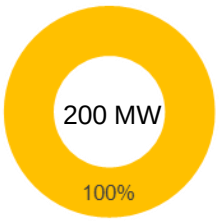
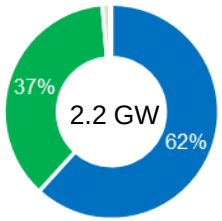
	BW1		BW2		BW3		BW3.5		BW 4		Smalls		ALL	
	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects	Capacity MW	No. of Projects
Wind	649	8	559	7	787	7			1 362	12	9	2	3 365	36
Solar PV	627	18	417	9	435	6			813	12	30	6	2 322	51
Solar CSP	150	2	50	1	200	2	200	2					600	7
Landfill Gas					18	1							18	1
Biomass					17	1			25	1	10	2	52	4
Small Hydro			14	2					5	1			19	3
MW	1 426	28	1 040	19	1 457	17	200	2	2 205	26	49	10	6 376	102
Commercial Operation	1 415	28	804	16	0	0	0	0	0	0	0	0	2 220	44

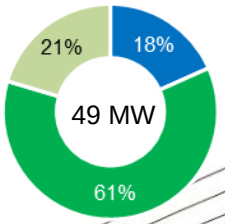


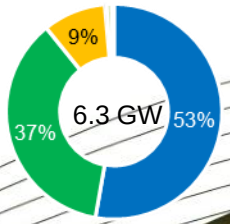












RENEWABLE ENERGY PROCURED VS DETERMINED

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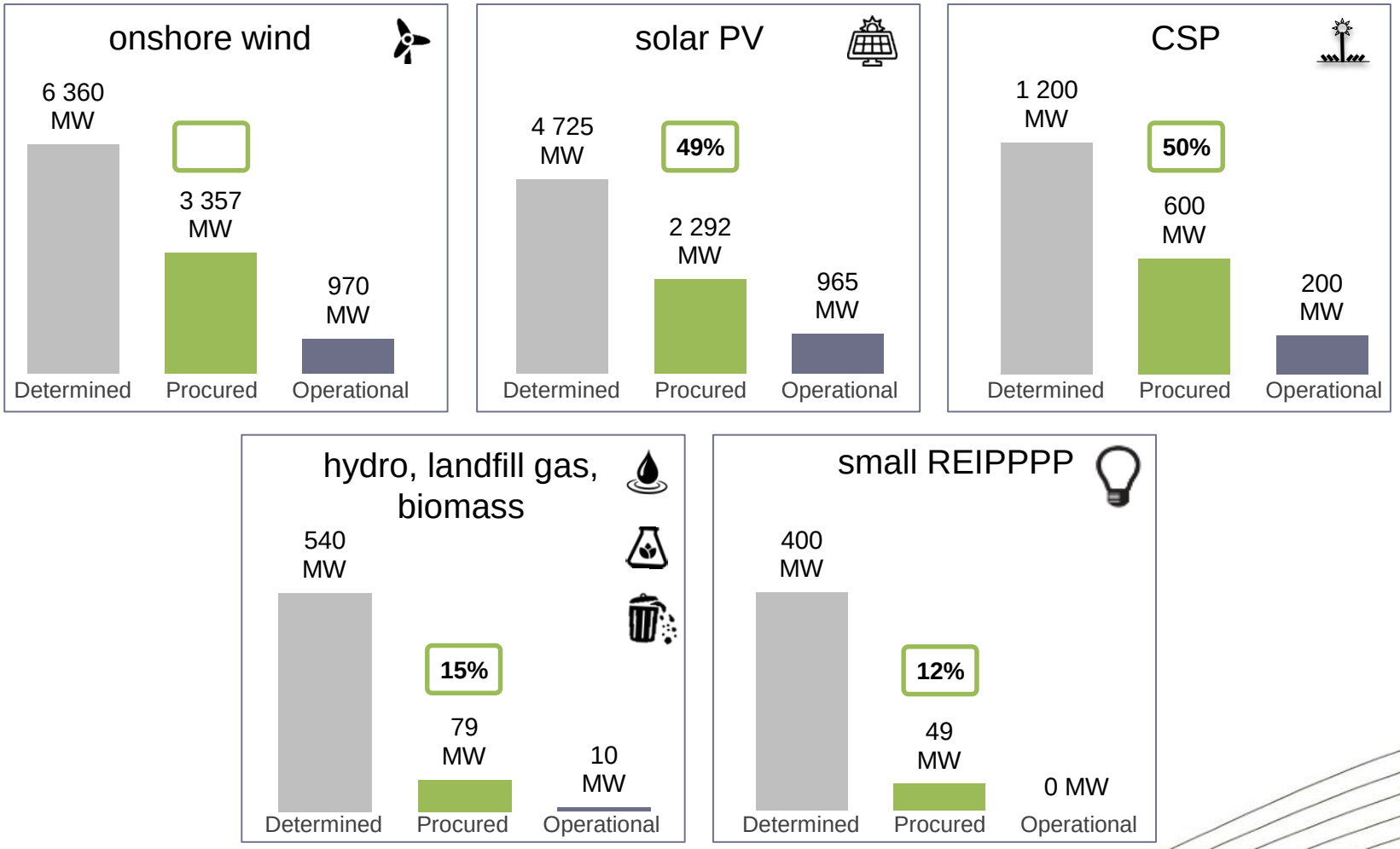

RENEWABLE ENERGY DECREASING PRICE PATH

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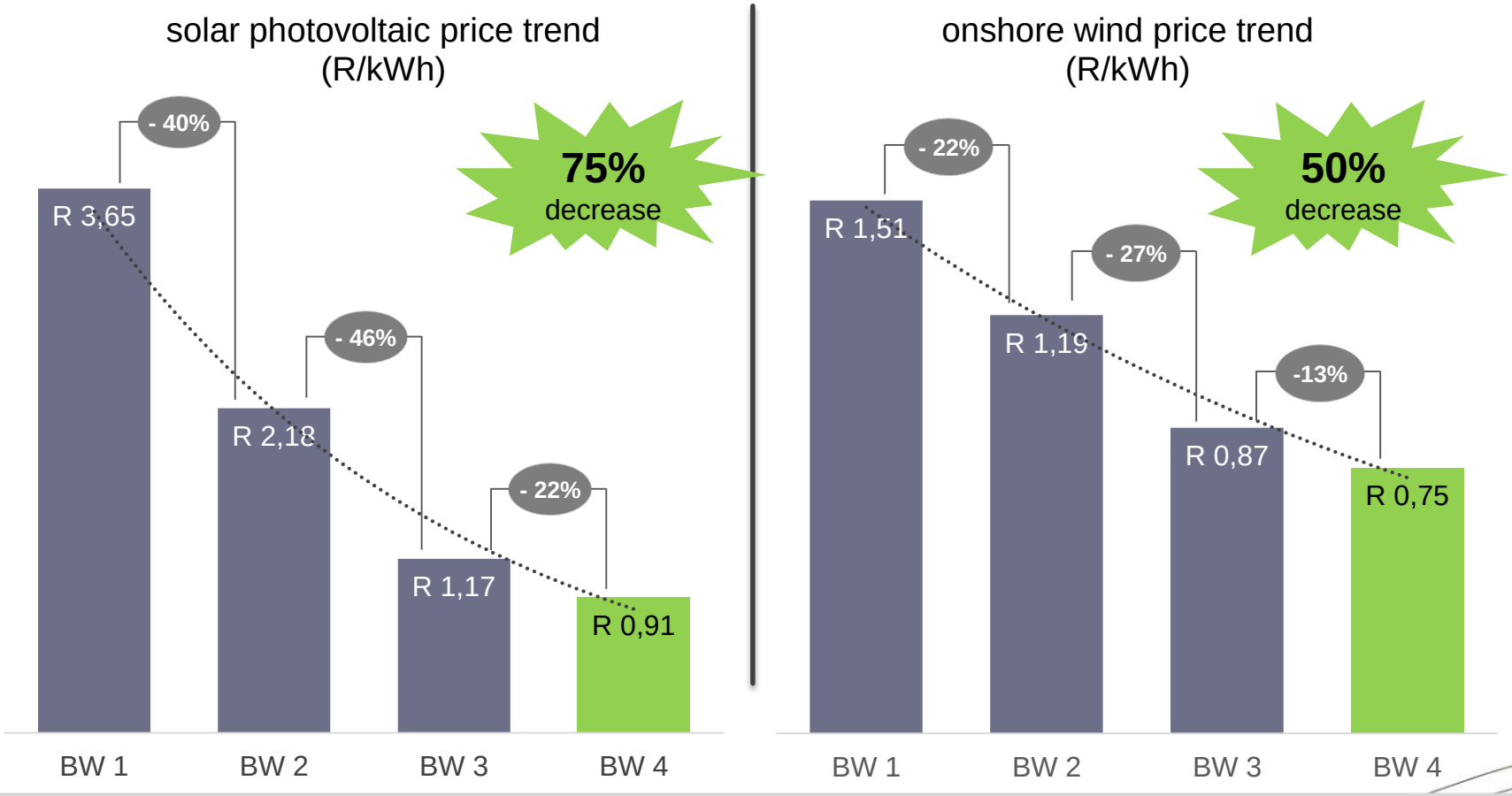

The REIPPPP is delivering energy at increasingly cost competitive rates

RENEWABLE ENERGY CONTRIBUTING TO THE GRID

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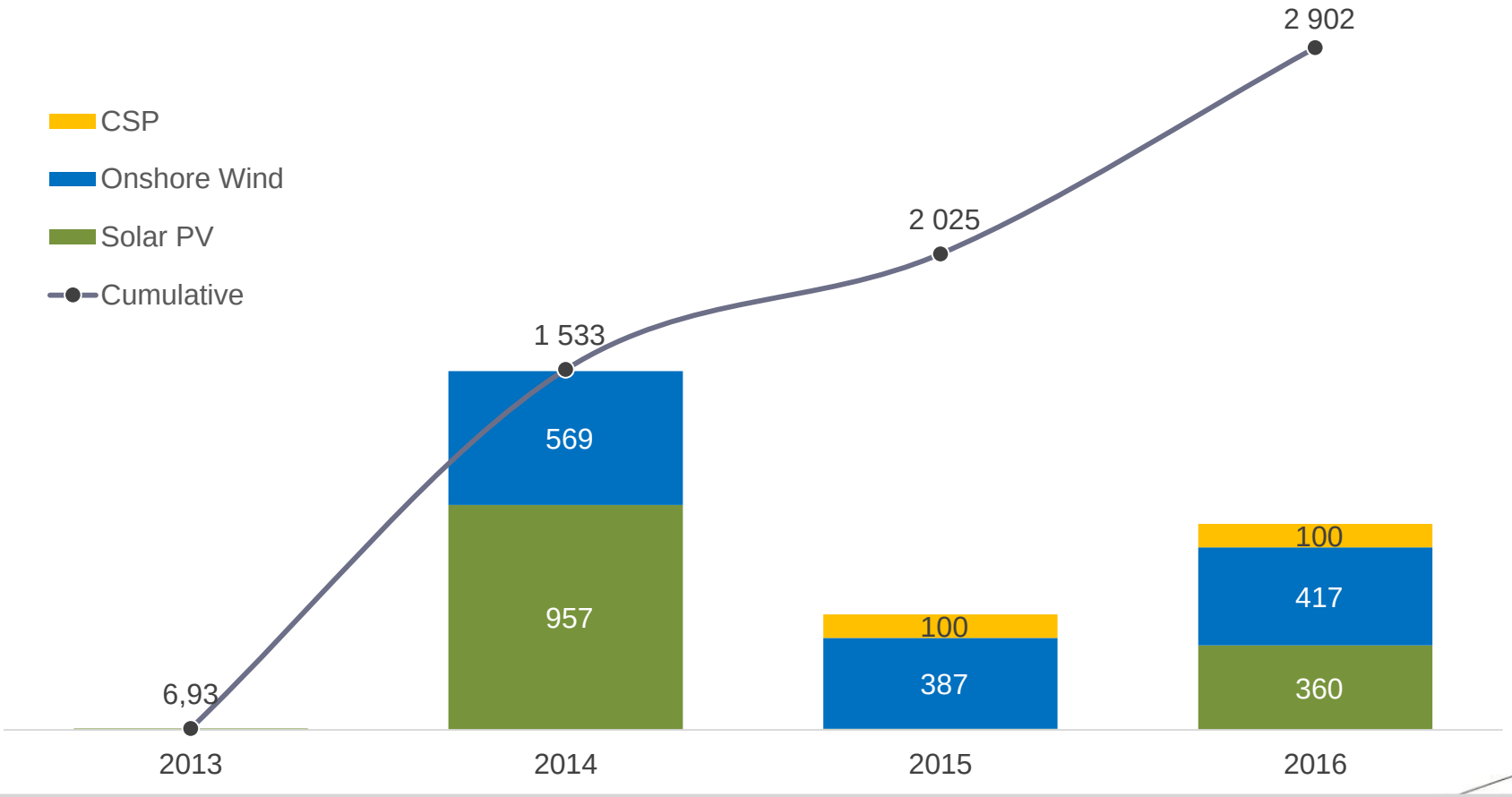

By Dec 2016, 3GW will have being added to the national grid since the programme's inception
By Dec 2016, 55 of 102 projects (92 large and 10 smalls) will be providing clean renewable energy to households and businesses across South Africa

RENEWABLE ENERGY GENERATION

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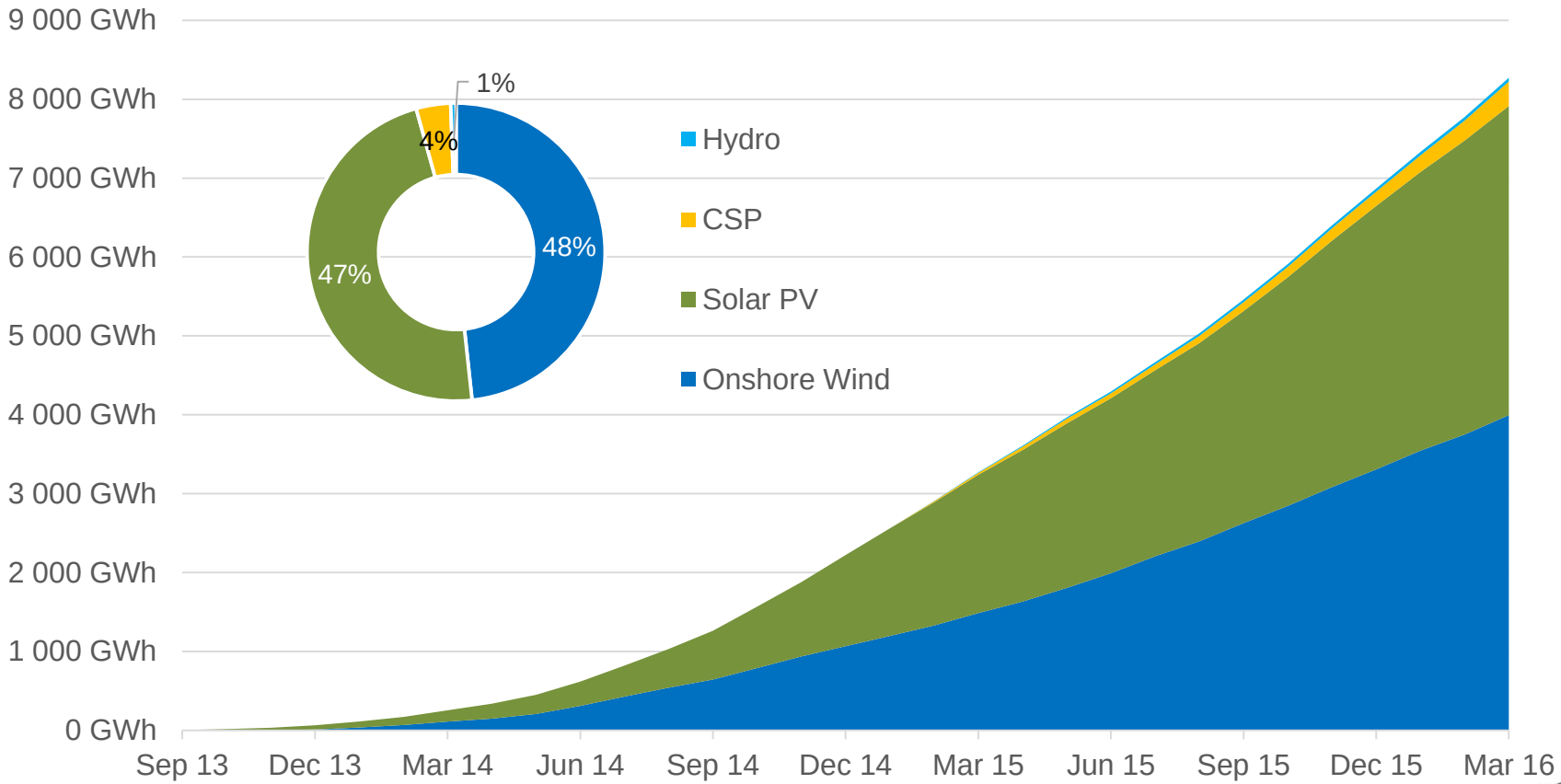

Since REIPPPP's inception the projects have contributed over **8 000 GWh** to the national grid.

RENEWABLE ENERGY CONCLUSION

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6 bid rounds (bid windows 1, 2, 3, 3.5, 4 and 1S2[1]) **completed**

R194 billion investment attracted for energy infrastructure in bid windows 1,2,3,3.5, 4 and smalls First Stage 2

334 bids received and **evaluated** (17.9 GW total capacity)

102 **selected** as preferred bidders

6 376 MW electricity capacity **procured**

2144 MW **actual capacity** delivered from **43 IPPs**

Note 1. bid window 1S2 | Small scale projects, first completed procurement window comprised of a two stage bidding process

The REIPPPP is most advanced and already making a significant contribution in 5 years to power supply in the country

RENEWABLE ENERGY CONCLUSION

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- **13 225 MW** – total Determinations for renewable (including Smalls)
  - **6 376 MW** Procured
  - **4 006 MW** Signed
  - **2 220 MW** Connected (44 Projects)

- **1 851MW** – Under evaluation, estimated value R61 billion.

- **4 998 MW** – available for future Bid Windows

- IRP 2010 target 17.8GW of renewable by 2030 which amounts to a potential **R450 billion of investment** by private sector.

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Progress to date

OTHER IPP PROCUREMENT PROGRAMME

COAL

Coal (2 500 MW) | 2 500 MW Determined Dec 2012 | Two Bid Windows

Status

- **Initial interest (June 2014 (RFI**) shown by 80 IPPs including potential projects in Botswana, Zimbabwe, Swaziland and Mozambique
- **December 2014, first coal IPP bid window released to market** (domestic, single buyer PPA)
- **2 Nov 2015 | First bid submission date**. Received two bids for combined capacity of 900 MW (submission delayed twice from August 2015 at request of the market)
- Bids have been evaluated. **Preferred Bidder Announcement is pending** DOE approval

Next Steps

- **Bid Window 1 Preferred Bidder Announcement** planned for Q2 2016/17
- **Second Bid Window RFP (**1 600MW) providing for clean coal technologies planned for Q3 2016/17 and **Bid Submission** planned for Q1 2017/18:
  - Clean coal technologies are important during the transition to a low carbon future.
  - Paris Agreement – Limited availability of export credit finance for less environmentally friendly coal technologies.
  - These technologies are expected to come at a higher capital cost and may result in higher electricity tariffs

GAS TO POWER

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Gas to Power (3 126 MW)

3 126 MW Determined Dec 2012

3 000 MW Imported & 126 MW Domestic Gas

Status

- Developing the **3 000 MW Imported Gas Preliminary Information Memorandum** (PIM) that describes the Project, Commercial Arrangements, Project Participants and Regulatory Frameworks
- **Conceptualisation** of the **Domestic Gas** to Power Program for **126 MW** has commenced
- All oil and gas majors standing ready to participate and are forming consortia
- **173 responses received** for 3 126 MW Gas RFI

Next Steps

- Imported Gas **PIM** release in **Q2 2016/17**
- Plan to release the **RFQ** to the market in **Q3 2016/17**
- Plan to release the **RFP** to the market **in Q1 2017/18**
- **Domestic Gas** to Power Concept under consideration

The Gas Programme will stimulate the gas industry and gas infrastructure development within South Africa, requiring new policy frameworks and legal and regulatory amendments

GAS STRATEGIC PARTNER

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Gas Strategic Partner (600 MW)

600 MW Determined Mar 2016

Objectives : BEE BBBEE Industriali-sation

New

Status

- The programme is envisaged to be the procurement of a **Strategic Partner** for the development and implementation of a **600 MW gas fired power generation project**
- The Strategic Partners will not necessarily be required to possess the requisite power generation technical and development expertise, but may procure such expertise
- An **Expression of Interest (EOI)** has been released to the market to determine interest in the programme
- **91 EOI responses were received on 20 June 2016**. EOI Review Response report prepared, analysing the responses and assessing the matters for consideration in preparing the procurement documentation

Next Steps

- Inherent links between the Gas to Power IPP Procurement Programme (3126MW) and the Gas Strategic Partner Programme (600MW); it is contemplated that the LNG supply and the gas importation infrastructure will be procured as part of the Gas to Power IPP Procurement Programme.
- The RFP for the Gas Strategic Partner Programme will follow within one month after the release of the RFP for the Gas to Power IPP Procurement Programme.
- Key consideration
  - SOC Participation %
  - Project structure
  - BEE %
  - BBBEE opportunities and funding
  - Site selection (per determination)
  - Key drivers (manufacturing)

PEAKERS

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Gas to Power (1 020 MW)

1 020 MW Determined May 2012

Status

- The Dedisa OCGT Plant is located in the Coega IDZ, Eastern Cape with 335 MW capacity
- Completed and generating electrical energy since 30 September 2015

Next Steps

- The Avon OCGT Plant is located near Shakaskraal, Kwa-Zulu Natal with a capacity of 670 MW
- Avon to reach COD by October 2016 adding 670 MW of Peaking power

At March 2016, Avon has created **4 304 jobs** during construction phase:
2 778 youth jobs and
272 jobs for **women**

REGIONAL COOPERATION

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Status

- **Hydro:**
  - The signed Grand Inga Treaty between SA and the DRC effective March 2015
  - Obliges SA to negotiate an off-take agreement for 2 500 MW of hydroelectricity from the Inga Hydro Project
- **Coal:**
  - A **3750 MW** determination gazetted in May 2016
  - **Procurement of Coal IPPs** in the region (Botswana, Swaziland, Zimbabwe & Zambia)
- **Gas:** Significant opportunities for alternative gas supply from Mozambique (medium to long term)
- **Renewables**: Sharing experiences (bilaterally and on demand) with African countries seeking to roll-out their RE strategies
  - Botswana
  - Namibia
  - Malawi
  - Kenya

Next Steps

Regional engagement framework being developed for South Africa's collaborative role in regional capacity building, investment and trade in energy:

- **Generation Projects:** Cross-border projects in Botswana to be developed after inter-Government and inter-utility agreements signed
- **Regional Transmission Networks:** Strategy formulation for development and expansion of transmission infrastructure in SADC
- **Advisory and Capacity Development Activities:**
  - Structuring and Formalisation of Regional Office
  - Capacity support for INGA PMU,
  - CSP RE Support to Namibia
  - PV RFP Support to Botswana

GRID CONSTRAINTS

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Status

- Subsequent to the REIPPPP bid windows 1 to 4, much of the available grid capacity in areas of REIPP interest in the Northern Cape, Eastern Cape and Western Cape Provinces have been utilised, posing a **major grid constraint challenge for expansion plans under the REIPPPP and non-renewable IPP programmes** such as Gas and Coal.

- In support of the roll-out of the IPPPP and timely grid connections, the IPP Office will collaborate with Eskom on establishing **MYPD4 IPP grid and budgetary requirements** as well as IPP Generation forecasts in to **Transmission Development Plan 2017**.

- Creation of a Prioritization model that will generate the **MYPD4 grid integration and budgetary requirements** which will enable future IPP connections achieved in June 2016.

Next Steps

- Ongoing grid **Risk assessment and constraints analysis** for bid windows in process.

- IPP Office collaboration with Eskom on the **Generation Forecast** inputs in to the Transmission Development Plan 2017.

- Study on the integrated **REIPPP deep grid requirements** for future bid windows by March 2017.

- Evaluation of probabilistic-derived acceptable level **deemed energy risk** to inform grid expansion and bid evaluations by March 2017.

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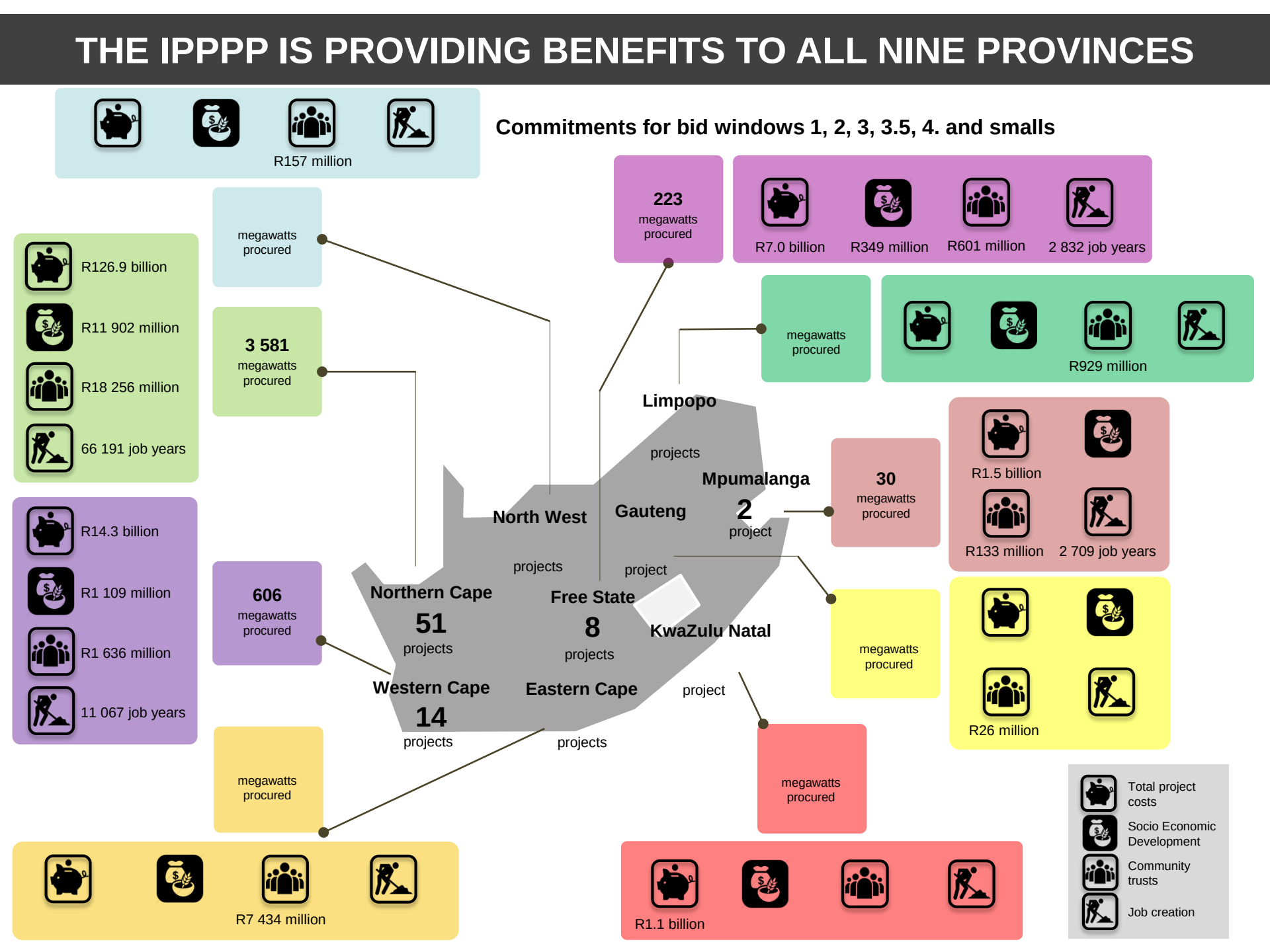
Progress to date - Advisory

ECONOMIC DEVELOPMENT OF THE IPPPP

THE IPPPP IS PROVIDING BENEFITS TO ALL NINE PROVINCES



THE IPPPP CONTRIBUTES TO BROADER NATIONAL OBJECTIVES

JOB CREATION

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Commitment for 6 376 MWs procured

Note that data includes BW 1, 2, 3, 3.5, 4 and smalls

Planned Employment SA citizens

Cumulative construction and operations[1] employment

111 835

Job years[2]

24 965

job years[2] **achieved**[3] since end 2013 to 31 March 2016 (bid windows 1, 2 and 3)

Projection for 2023
(based on 21 448MW)

If extrapolated for the complete IPPP programme[4]:

~371 000

Job years[2]

Note 1. The duration of the construction periods typically range between 2 and 4 years, while the planned operations period of the plants is 20 years. Projected numbers are stated as cumulative over the total periods; **Note 2**. Job creation is measured in job years (equivalent of a full time employment opportunity for one person for one year; **Note 3**. As at 31 March 2016; **Note 4**. Including large renewables, small projects, peakers, coal, gas (LNG imports & domestic), and co-gen.

THE IPPPP CONTRIBUTES TO BROADER NATIONAL OBJECTIVES

INCREASED INVESTMENT

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Commitment for 6 376 MWs procured

Projection for 2023
(based on 21 448MW)

Note that data includes BW 1, 2, 3, 3.5, 4 and smalls

Planned Investment

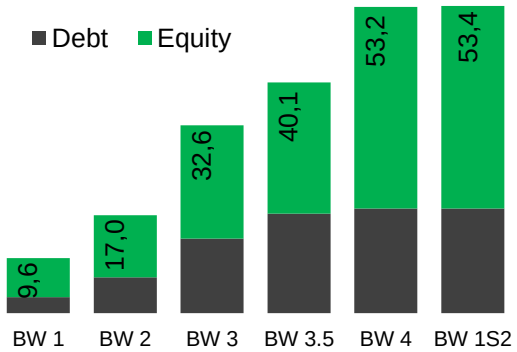
Total Project Costs[1] committed for IPP development

R 194.1 billion

of which:

R53.4 bn
from foreign sources

R139.4 bn
from domestic financial institutions[3]



If extrapolated for the complete IPPP programme[2]:

~R 654 billion

Note 1. IPP data reflects cumulative values over the construction phase and projected operational life (production phase) of the projects (i.e. 20 years); Note 2. Including large renewables, small projects, peakers, coal, gas (LNG imports & domestic), and co-gen. Note 3. Excluding early finance and Vat facilities. Analysis done on financial close for BW 1 and 2 and RFP for BWs 3, 3.5, 4 and smalls. This may result in minor discrepancies with reported numbers elsewhere in the report.

THE IPPPP CONTRIBUTES TO BROADER NATIONAL OBJECTIVES

LOCAL CONTENT

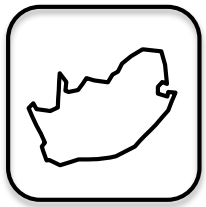
energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

Commitment for 6 376 MWs procured

Projection for 2023
(based on 21 448MW)

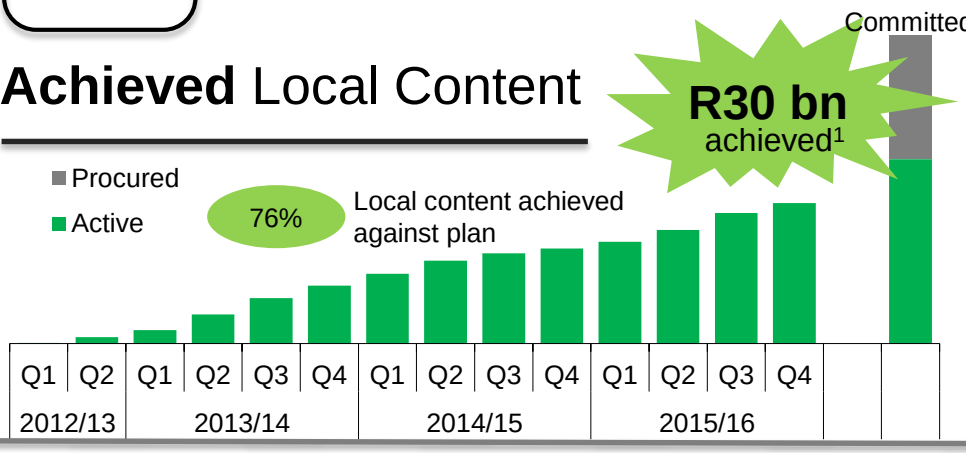
Note that data includes BW 1, 2, 3, 3.5, 4 and smalls

Planned Local Content

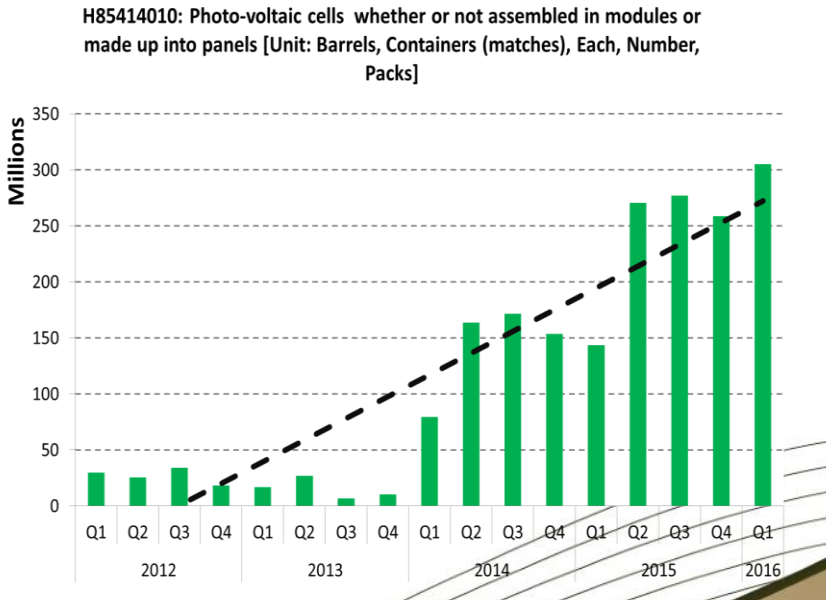


R 65.7 billion

Achieved Local Content



Real industrial effect



Note 1. As at 31 March 2016.

THE IPPPP CONTRIBUTES TO BROADER NATIONAL OBJECTIVES

SOCIO-ECONOMIC DEVELOPEMENT

energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

Commitment for 6 376 MWs procured

Projection for 2023
(based on 21 448MW)

Note that data includes BW 1, 2, 3, 3.5, 4 and smalls

Planned Socio-economic development contribution (over 20 years)

R 19.3 billion

R 964 million average per year

R171 million
achieved[1]

If extrapolated for the complete IPPP programme[2]:

~R 64 billion

It is important to note that SED obligations become effective only when operations commence and revenue is generated. Of the 102 IPPs in BW 1 – 4 only 43 are operational to date (with the first plant starting operations and generating revenue in August 2014)

Note 1. As at 31 March 2016 **Note 2**. Including large renewables, small projects, peakers, coal, gas (LNG imports & domestic), and co-gen.

THE IPPPP CONTRIBUTES TO BROADER NATIONAL OBJECTIVES

ENTERPRISE DEVELOPMENT

energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

Commitment for 6 376 MWs procured

Projection for 2023
(based on 21 448MW)

Note that data includes BW 1, 2, 3, 3.5, 4 and smalls

Planned Socio-economic development contribution (over 20 years)

R 6 billion

R 301 million average per year

R53 million
achieved[1]

If extrapolated for the complete IPPP programme[2]:

~R 20 billion

It is important to note that ED obligations become effective only when operations commence and revenue is generated. Of the 102 IPPs in BW 1- 4 only 43 are operational to date (with the first plant starting operations and generating revenue in August 2014)

Note 1. As at 31 March 2016 **Note 2**. Including large renewables, small projects, peakers, coal, gas (LNG imports & domestic), and co-gen.

THE IPPPP CONTRIBUTES TO BROADER NATIONAL OBJECTIVES

LOCAL COMMUNITY DEVELOPMENT

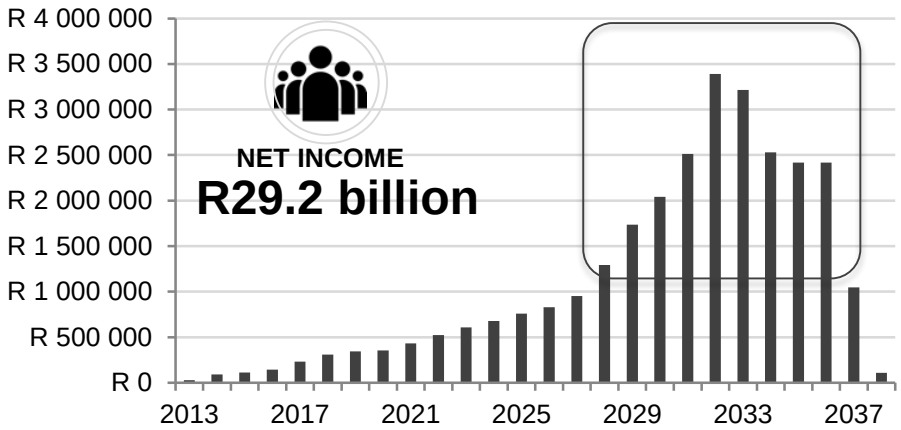
energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

Commitment for 6 376 MWs procured

Projection for 2023
(based on 21 448MW)

Note that data includes BW 1, 2, 3, 3.5, 4 and smalls

Community trust - Net income (total)[1]



R1 461 million
average contributed/year

If extrapolated for the complete IPPP programme[2]:

~R 99 billion

Assuming community trusts will continue in the current format

Note 1. As at 31 March 2016. **Note 2**. 20 years operational life.; Note 2. Including large renewables, small projects, peakers, coal, gas (LNG imports & domestic), and co-gen.

INDUSTRIALISATION

energy
Department:
Energy
REPUBLIC OF SOUTH AFRICA

- The programme has been designed to contribute to the development of a local green industry and creation of green jobs.
- A total of R30bn local content spend has been achieved in IPP Programmes up till the end of March 2016.
- At least twelve new industrial facilities that have been established in the country in direct response to the renewable energy programme.
- Since the IPP programme started, a significant increase of South African based product exports can be observed on the export data as reported by SARS.
- Although coming off a low base, these exports create and sustain valuable jobs as well as to contribute to the country's foreign reserves - crucial in the current economic climate.

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THANK YOU