

In the matter regarding an

APPLICATION FOR A GENERATION LICENCE

By

LIMARCO 77 (PTY) LTD

In the province of

NORTHERN CAPE

Application No: NERSA-658-111

DECISION

Based on the available information, public comments and analysis of generation licence application received from Limarco 77 (Pty) Ltd, the National Energy Regulator of South Africa, at its meeting held on 26 April 2012:

1. **Approved** the issuing of a generation licence to Limarco 77 (Pty) Ltd for operating its 10MW solar photovoltaic (PV) power plant situated in Konkoosies farm, North East of Pofadder, Northern Cape, subject to licence conditions imposed.
2. **Approved** the attached Reasons for Decision (RfD) document.
3. **Noted** the price and the risk allocation provisions in the Power Purchase Agreement (PPA) between Eskom Holdings SOC Limited and Limarco 77 (Pty) Ltd.

REASONS FOR DECISION

INTRODUCTION

1. The South African Integrated Resources Plan 2010 (IRP2010) approved and published in May 2011 by the Department of Energy (DoE) outlines the proposed power generation mix for South Africa for the period 2010 to 2030. The IRP2010 seeks to increase the overall contribution of new renewable energy generation to 17,800MW by 2030 (42% of all new-build generation).
2. In this regard, on 02 July 2011, the Minister of Energy issued a Determination for the Independent Power Producer (IPP) Procurement Programme in accordance with section 34 (1) of the Electricity Regulation Act, 2006 (No. 4 of 2006) ('the Act').
3. The National Energy Regulator of South Africa (NERSA) concurred with the Ministerial Determination on 07 July 2011.
4. To implement the Ministerial Determination, the Department of Energy (DoE) released a Request for Proposals (RfP) document for the procurement of renewable energy on 03 August 2011.
5. The RfP set the first window of procurement that targeted to procure 3,725MW of renewable energy from the following renewable energy sources: 1,850MW of onshore wind, 1,450MW of solar photovoltaic (PV), 200MW of concentrated solar power (CSP), 75MW of small hydro(≤ 10 MW), 25MW of landfill gas and 12.5MW of biomass. This bidding window closed on 04 November 2011.
6. The RfP requires the abovementioned projects to meet the Commercial Operation Date (COD) of 30 June 2014 for all technologies, except for Concentrated Solar Power (CSP), for which the COD is the end of June 2015.
7. In total, 53 bids were received 04 November 2012 and an evaluation was conducted between 04 and 28 November 2012.
8. On 07 December 2011, the DoE announced the 28 preferred bidders for the first bid submission phase. **Limarco 77 (Pty) Ltd** ('the Applicant') is one of the preferred bidders.

9. The capacity allocation to the preferred bidders is as indicated in Table 1 below:
- 10.

Technology	Capacity (MW)	Number of Projects/Passing Bids
Wind	652.2	8
Solar PV	640.5	18
Solar CSP	150	2
Total	1442.7	28

Table 1: Capacity allocation to the preferred bidders

11. All preferred bidders are required by DoE to obtain generation licences before the end of June 2012 to enable financial close of the projects.
12. Limarco 77 (Pty) Ltd is a Special Purpose Vehicle (SPV) formed by BioTherm Energy (Pty) Ltd, for the express purpose of developing the project as well as preparation and submission of the bid in response to the DoE's RfP.

THE APPLICATION

13. On 21 December 2012, BioTherm Energy Pty Ltd applied for a generation licence for its 10 MW solar PV power plant located in Konkoosies Farm, 32 km North East of Pofadder in the province of the Northern Cape.
14. The following documents accompanied the generation licence application form:
- Preferred bidder's appointment letter from Department of Energy.
 - Estimate connection Quotation from Eskom.
 - Confirmation of water availability from Department of Water Affairs.
 - Single line diagram.
 - Equipment list.
 - South African Civil Aviation Authority (SACAA) Clearance.
 - Reasons of Decision from Department of Environmental Affairs.
 - Financial model.
 - Proof of land ownership.
 - Connection agreement.
 - Power Purchase Agreement (PPA). The duration of the PPA is 20 years.

THE APPLICANT

15. The applicant is a private company registered in South Africa. Its registration number is 2011/008075/07. This is an SPV set up by BioTherm (Pty) Ltd which was appointed as the preferred bidder.
16. The applicant will be responsible for the development, operation and maintenance of the solar PV power plant. The shareholding structure of Limarco 77 (Pty) Ltd is shown on Table 2 below.

Company Name	Shareholding %
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]

Table 2: Limarco 77 (Pty) Ltd shareholding structure

DECISION MAKING PROCESS

17. On 27 January 2012 and 3 February 2012, the applicant published notices in Business Day and Die Gemsbok newspapers notifying residents about the proposed Konkoosies solar PV project and no objections were received from stakeholders.
18. On 22 February 2012, NERSA published its notices inviting all stakeholders and members of the public to attend a public hearing or to submit comments. These notices were published in the following national and provincial newspapers:
 - a. **National:** Business Day, The Star, Pretoria News, Mercury, Sowetan, Cape Times, and Business Day.
 - b. **Provincial:** Cape Argus, Polokwane Observer and Diamond Field Advertiser.
19. On the 06 March 2012, a public hearing was held in Postmasburg in the Northern Cape. Eight stakeholders made oral presentations at the public hearing.

OBJECTORS AND INTERVENING PARTIES

20. There were no objections received through the notices published by the Applicant.

APPLICABLE LAW

21. The legal mandate for the Energy Regulator to issue electricity generation licence is derived from the following Acts:

- a. Electricity Regulation Act, 2006 (Act No.4 of 2006), and
- b. National Energy Regulator Act, 2004 (Act No. 40 of 2004).

ANALYSIS OF THE APPLICATION

FINANCIAL INFORMATION

22. The project will be financed by ■■■% debt and ■■■% equity as shown on Table 3 below.

Source	R'm	%
Net Capital Expenditure (Net Capex)	■■■	■■■
Equity	■■■	■■■
Debt	■■■	■■■

Table 3: Konkoosies PV project funding

23. The Debt tenor for the project is ■■■ years from COD and this period falls within the duration of the PPA (20 years).

24. The overnight cost of the project i.e. Engineering, Procurement and Construction (EPC), is ■■■ rands.

25. The total project cost is R■■■■■

26. The Internal Rate of Return (real before tax and financing) of the project is ■■■% while equity post tax real return is ■■■%.

27. Calculated Construction Costs: = $\frac{\text{Capital costs}}{\text{Maximum Capacity}}$

= R■■■■■ kW

= R■■■■■/kW

= US\$■■■■■/kW (exchange rate of R8.00 per US\$)

28. According to the International Energy Agency (IEA) 2011 study, the investment cost range for PV power installations is 3374 - 5588 US\$/kW. Another study done by ECOFYS in 2011 found PV costs to be between US\$3,896/kW - \$6,274/kW. Therefore, the capital investment cost of the Konkoosies PV plant is reasonable since it is below the international cost range. Table 4 below summarises the comparison of costs.

IEA Study 2011	ECOFYS Study 2011	Applicant
US\$3,374/kW– US\$5,588/kW	US\$3,896/kW - \$6,274/kW @ R8 per US\$	US\$ [REDACTED]/kW

Table 4: PV investment cost comparison

TARIFFS

29. The Commercial Energy Rate of the PV plant will be R [REDACTED]/kWh with the full tariff indexed to Consumer Price Index (CPI) the DoE IPP Procurement PV ceiling price of R2.85/kWh and 2009 REFIT of R3.94/kWh.
30. The indexation assumed in the financial model of the project is 5.7%¹.
31. The answer to the question of additional Early Operating Energy Rate raised during the public hearing is that in the RfP bid documentation there is an Early Operation Energy Rate applicable to commissioning of the first units and this rate is equal to [REDACTED]% of the Commercial Energy Rate.
32. Table 5 below shows the comparison of the PPA tariff of the applicant with REFIT 2009 and IPP Procurement Ceiling Tariff. The tariff proposed by the applicant is fair since it is less than REFIT 2009 and IPP Procurement Program Ceiling tariff.

Technology	REFIT 2009 Tariff (R/kWh)	IPP Program Ceiling Tariff (R/kWh)	PPA Tariff (R/kWh)
Solar Photovoltaic	3.94	2.85	[REDACTED]

Table 5: PPA Tariff comparison with REFIT 2009 and IPP Procurement Ceiling tariff.

POWER PURCHASE AGREEMENTS ANALYSIS

33. The Power Purchase Agreement (PPA) was presented to the Energy Regulator at its meeting held on 16 November 2011. The highlights of the PPA analysis were summarised as follows:
- The analysis indicated a fair and balanced allocation of risks between affected parties.

- b. The adopted price competitive mechanism was found to be compatible with fair pricing to electricity consumers.
- c. All the payment obligation risks or liabilities of the Buyer were found adequately catered for through a Government Support package in the form of an Implementation Agreement.



- 34. The Energy Regulator noted the Risk Allocation and Cost Recovery provisions in the Project Agreements for New Generation Capacity under the Independent Power Producer (IPP) Procurement Programme.

ECONOMIC

- The applicant indicates that this project will create 93 job opportunities during the construction phase; 16 jobs for 5 year operation and maintenance; and about 24 jobs for direct operations and maintenance by ■; a South African company that is wholly owned subsidiary of ■

- 36. The applicant will generate a revenue of R■-in its first year of operation.
- 37. The project will contribute ■% of its revenue towards local social-economic development initiatives and ■% for enterprise development.
- 38. Due to the above economic contributions, it is evident that power that will be generated by the Koonkosies PV plant will improve the reliability of electricity supply and socio-economy of the country and therefore the proposed PV plant will be beneficial to the public.

TECHNICAL INFORMATION

- 39. Koonkosies PV plant will inject 10 MVA at a voltage level of 33 kV into the Distribution System at the grid connection point.
- 40. The PV plant will be connected to Eskom's Paulputs substation.
- 41. A general site plan and single line diagram have been included in the application.
- 42. The capacity factor of the PV plant with fixed tilt racking is 22.56%.

43. An energy yield assessment was performed by Aurora Power Solutions and Arup and the measured data is as follows:
 - a. The annual specific yield is 2039 kWh/kW_{peak}.
 - b. The annual performance ratio (PR) is 78.9%.
44. The plant availability is estimated at 98%.
45. Given the above performance data and technical information it is evident that the project will deliver the expected energy to the grid.

CONCLUSION

46. On the conspectus of the facts and evidence, the generation licence application is in compliance with the requirements of the Electricity Regulation Act, 2006 (Act No. 4 of 2006) and it is appropriate to make the decision set out above.