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South African Nuclear Energy Corporation SOC Limited

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APPROVAL & DISTRIBUTION

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EXECUTIVE SUMMARY

The directive given to the new Necsa Board was that they had to present a Sustainable Corporate Plan for the organisation. Investigation showed that the organisation was in a dire financial situation with no funds to take care of operational expenses for the rest of the 2018/19 financial year as of November 2018. In order to take care of this financial shortfall it was necessary to liquidate certain financial assets of the organisation. A similar situation had arisen in the 2017/18 financial year. Clearly this was not a sustainable situation and a strategy had to be devised so as to enable the organisation to operate within the confines of available revenues such as Government Grants and sales revenues.

In November 2016 there was a Cabinet Resolution which made Necsa the owner/operator of the envisaged new Multi-purpose Reactor and the Nuclear Fuel Cycle as part of the Nuclear New Build Program. As a result Necsa set about gearing up to fulfil its defined role in the New Build Program. It was foreseen that the Pelindaba Enterprises Division of Necsa would fulfil an important role in nuclear manufacturing and that Pelchem would be essential for a nuclear fuel program. In addition Necsa embarked upon a program of establishing a strong engineering capacity. This capacity building was however not supported by way of an increased grant and resulted in an unaffordable personnel budget. Unfortunately these initiatives were accompanied by a breakdown in financial discipline ultimately resulting in the Disclaimer on the 2017/18 financials.

The Draft IRP indicates that the nuclear component will be moved out to the 2030's. The implication is that the initiatives taken to gear up for the New Build Program are no longer relevant. The mandate of Necsa makes provision for the organisation to engage in *"research and development in the field of radiation sciences and technology"*. In accordance with the mandate the Board decided that the organization should be refocused as an R&D organization.

An important component of the Necsa organization is the Mo-99 value chain which is primarily located in NTP but Necsa in turn provides critical support services such as the irradiation of target plates in the Safari-1 reactor. Necsa as a Radioisotope Centre of Excellence would also have to be strongly supported within the organization.

The Board has designed a "Target Organisation" which would be central to the delivery of a sustainable Corporate Plan. The establishment of this new target organization would be dependent upon an approval process which meant that a sustainable Corporate Plan could not be immediately submitted. As a result it was decided that an interim Corporate Plan would be submitted on the due date of 30 April 2019 but that a Turnaround Plan would be presented as an addendum to this Corporate Plan so as to give insight into the new organization and initiate an approval process.

1. INTRODUCTION

At the first meeting of the new Necsa Board which was held on 13 December 2018, the Minister of Energy issued a directive to the Board that they should urgently develop a sustainable Corporate Plan for the organisation. Since this meeting the Board has devoted considerable attention to delivering on this directive and as a result has held numerous special Board meetings and workshops. It was first necessary to develop an understanding of the complexities associated with the organisation and also the underlying problem areas. The Board is now in a position to propose a turnaround strategy which is based on a thorough understanding of the current organisation and a clear vision of the future shape of the organisation. This report presents the Board's understanding of the problems which immediately confront the organisation. A summary of the financial position and the underlying root causes are also provided. The results of an investigation into Pelindaba Enterprises are presented together with some background on the Pelchem situation. Finally a revised structure is proposed together with an overview of the restructuring strategy. This document will serve as an addendum to the Corporate Plan describing the strategy to move from the current organisation to the target organisation.

2. NECSA'S DETERIORATING FINANCIAL POSITION

The Board soon realised that they were dealing with an organisation which was in a dire financial position. Over the preceding three financial years the organisation had incurred the following net losses:

Financial Year	Net loss
2016/17	(R124.789m)
2017/18	(R132.992m)
2018/19 Projection	(R294.265m)

The reasons for this deteriorating financial position were twofold in that sales targets of commercial divisions (particularly Pelindaba Enterprises) had not been met and personnel expenses had climbed to around R800 million per annum. In the 2018/19 financial year the position was further aggravated by the extended closure of NTP and the corresponding decline in revenues received by Necsa for services rendered. Furthermore the budgeted dividend of R51 million from NTP was not received.

The Pelindaba Enterprises Division of Necsa operates as a ring fenced commercial entity within Necsa but the substantial losses which were incurred by this entity (R90 million loss in 2018/19) reflected directly on the Necsa financials and was a drain on cash.

Pelchem is a subsidiary company of Necsa and as a result their losses are not directly reflected on the financials of Necsa SOC (as opposed to Necsa Group). Pelchem is however unable to pay for services rendered on an arms-length basis leaving Necsa out of pocket to the tune of R115 million for the 2017/18 financial year.

It was previously envisaged that Necsa would be playing a key role in the Nuclear New Build program and as a result Necsa had been structured and resourced with this in mind. This was to a large extent why Pelindaba Enterprises and Pelchem had been retained and also why a significant engineering capacity had been built up within the organization. In addition a number of engineers received training overseas and also the Necsa Learning Academy was established primarily for the training of artisans. These latter actions contributed to the bloated personnel budget.

Unfortunately the well-intentioned (costly) initiatives mentioned above were also accompanied by a breakdown in financial discipline as evidenced in the Report of the Auditor General for the 2017/18 financial year. There was a tendency to spend large sums of money on work outsourced to external parties and in most instances the supply chain management system was bypassed. This tendency has, fortunately to a lesser extent, flowed over into the 2018/19 financial year. Investigations have been initiated and where appropriate necessary disciplinary processes will be followed.

One of the first issues to confront the new Board was the realisation that the organisation did not have available cash resources to meet operational requirements as of November 2018. A similar situation had arisen in 2017 and the previous Board had to also make contingency arrangements which included the following cash flow transactions and borrowings:

- **2017/18 - Total Cash Funds obtained to manage operational requirements of R178.5 million:**
  - Withdrawal from Safari LEU Spent Fuel Elements Disposal Fund between December 2017 and February 2018, i.e. R100.0 million. It should be noted that

in April 2018, after receiving Government Grant, the R100.0m was transferred back into the Safari LEU Spent Fuel Disposal Fund

- Utilised Nedbank Overdraft Facility of R20.0 million which was also repaid in April 2018 after receiving the Government Grant
- A R58.5 million loan from NTP Radioisotopes in February 2018, with loan conditions to repay the full amount to NTP by not later than 31 March 2019. The previous Necsa Board unilaterally changed the loan conditions to a repayment date of 31 March 2021

- **2018/19 - Total Cash Funds obtained to manage operational requirements of R385.0 million:**
  - Utilised Nedbank overdraft facility of R20.0 million to be paid back to Nedbank in April 2019 with receipt of Government Grant
  - In May 2018, the previous Board approved that the R100.0 million borrowed in the prior year 2017/18 from the Safari LEU Spent Fuel Elements Fund, be utilised again for operational use in 2018/19
  - In November 2018, the previous Board approved that a further R105.0 million be withdrawn from the Safari LEU Spent Fuel Elements Fund
  - In December 2018 and again in January 2019, the Minister of Energy approved a request from the current Board for a further R170.8 million to be withdrawn from the Safari LEU Spent Fuel Elements Fund however, a total of R160.0 million was withdrawn from the Fund, resulting in the total utilisation from the Safari LEU Spent Fuel Elements Fund in 2018/19 of R365.0 million

The above transactions together with R20 million relating to a Nedbank overdraft which Pelchem has utilised result in a cash shortfall of R463.5 million. The utilisation of the Safari LEU Spent Fuel Element Fund will impact negatively on the going concern status of Necsa.

3. 2019/20 CORPORATE BUSINESS PLAN AND SHAREHOLDER'S COMPACT

It soon became apparent that the Board would not be able to meet the deadline of submitting a plausible Corporate Plan by the due date of 28 February 2019. As a result the Board requested a two-month extension for the submission, which request was approved by The Minister, enabling these submissions to be made by end-April 2019.

At a strategic workshop on 11 April 2019, the Necsa Board decided to adopt a three step strategy for the submission of the Corporate Plan. As a first step (by end-April 2019) the Corporate Plan and Shareholder's Compact based on the existing Necsa organisational structure and activities would be submitted. It was however clear to the Board that the organisation would need to be restructured in order for it to be financially sustainable and to enable it to fulfil its mandate as per the Nuclear Energy Act. Once these organisational changes were approved Necsa would submit a revised Corporate Business Plan and Shareholder's Compact which would be based upon this revised organisation.

A turnaround plan would serve as an addendum to the Corporate Plan for the existing organisation effectively providing the bridge between the existing and target organisation.

4. THE 2019/20 BUDGET

As previously indicated the Corporate Plan to be submitted as at 30 April 2019 would comprise of a budget based upon the current activities of the organisation. This budget reflects a deficit of R132.7 million and is summarised below and compared to the Budget of 2018/19 and the year-end forecast of 2018/19.

Necsa - Summary of Budget Income Statement 2019/20

	Forecast 2018/19 R'000	**Budget 2018/19** R'000	**Budget 2019/20** R'000
Income from Grants	581,154	609,438	817,617
Other Income	870,912	956,905	1,018,123
Total Income	1,452,066	1,566,343	1,835,739
Personnel & Personnel Related Expenses	787,528	861,091	871,313
Other Expenditure	958,801	716,821	1,096,988
Total Expenditure	1,746,331	1,577,913	1,968,300
Net Surplus / (Deficit)	-294,265	-11,570	-132,561
Net cash increase/(decrease) for the period	43,049	-41,440	-99,538

The "Other Income" specified in the table above is broken down as follows:

Necsa - Summary of Other Income 2019/20

	Forecast 2018/19 R'000	Budget 2018/19 R'000	Budget 2019/20 R'000
Interest Received: External	55,801	47,058	21,575
Dividends	496	51,816	10,964
Sundry Income	12,441	30,159	15,906
Local Sales	175,159	161,124	156,108
Foreign Sales	36,673	12,082	13,751
Intra Group Sales	242,678	300,656	371,417
Intra Company Income	347,664	354,010	428,402
Total Other Income	**870,912**	**956,905**	**1,018,123**

On the basis of the current structure of the organisation the DoE grant allocations are broken down as follows:

DoE Grant Allocation Per Division

	2018/19	2019/20
Office of the CEO	47,036.00	48,847.00
Engineering and Technical Services	45,697.00	64,607.00
Research and Technology Development(incl. BD&I)	69,821.00	104,781.00
Finance, IT and Supply Chain (less Knowledge Management)	76,844.00	78,000.00
HR and REAM (Incl. KM)	2,749.00	25,453.00
Operations	50,969.00	30,000.00
Nuclear Compliance Services (excl. Utilities and Facilities)	79,468.00	114,304.00
Corporate Items	30,000.00	46,000.00

DoE Grant Allocation Per Division

	2018/19	2019/20
	402,584.00	**511,992.00**
Engineering and Technical Services (Grant to be reduced and replaced with External income	0.00	-6,315.00
	402,584.00	**505,677.00**

Necsa and Pelchem's Cash Position is summarised below:

NECSA AND PELCHEM CASH OBLIGATIONS 31 MARCH 2019 AND BUDGET 2019/20

	R'000
Necsa Cash Obligations	
Nedbank Overnight Facility	-20,000
NTP Radioisotopes Loan	-58,500
Safari LEU spent Fuel Elements Fund Withdrawals	-365,000
Total Cash Obligations on 31 March 2019	-443,500
Plus: Net Cash Flow requirements for 2019/20 (As per Necsa Budget 2019/20)	-99,538
Total Necsa Cash Obligations on 31 March 2020	**-543,038**
Pelchem Cash Obligations	
Nedbank Overnight Facility 31 March 2019	-20,000
Less: Decrease in Overnight Faculty in 2019/20 (As per Pelchem Corporate Plan 2019/20)	5,000
Total Pelchem Cash Obligations on 31 March 2020	**-15,000**

5. THE NECSA MANDATE

As a starting point for the deliberations the Board took note of the Necsa Mandate as extracted from the Nuclear Energy Act of 1999:

- *To undertake and promote research and development in the field of nuclear energy and radiation sciences and technology and to make these generally available.*

- *To process source material, special nuclear material and restricted material and to reprocess and enrich source material and nuclear material.*
- *To co-operate with any person or institution in matters falling within these functions.*

Because of the delay in the New Build Program it was realised that the primary focus of the reshaped organization would, in terms of the mandate, be *"research and development in the field of radiation sciences and technology"*

This set the tone for Board strategic discussions which would focus on:

- Returning Necsa back to financial sustainability
- Refocussing Necsa activities to its mandate, as outlined in the Nuclear Energy Act – In this regard the primary consideration was the deferment of South Africa's nuclear power expansion programme, as per the draft IRP; and
- Implementing changes to the organisational structure to enable a refocussing to mandate as well ensuring financial sustainability. Necsa's activities should be refocussed to its core R&D mandate and nuclear power related activities be curtailed.

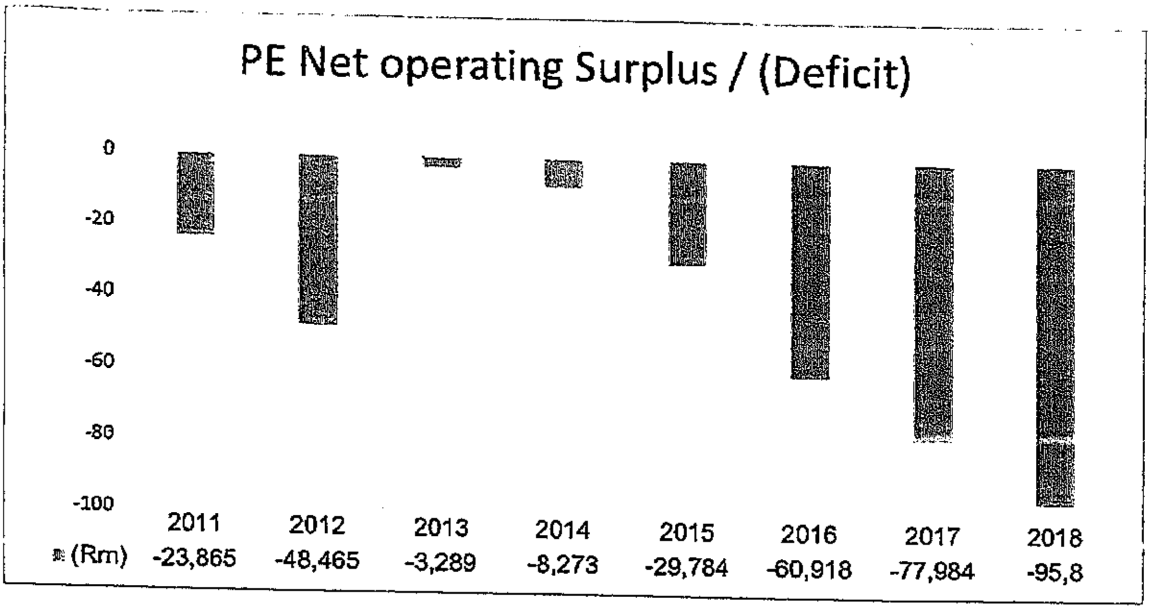
6. PELINDABA ENTERPRISES

It was always considered strategically important that the Pelindaba Enterprises Division of Necsa and the Pelchem subsidiary company be retained as they would play an important role in a New Build program. The Board undertook a critical review of the activities of Pelindaba Enterprises so as to evaluate the potential of this Division to operate as a sustainable standalone business entity.

Pelindaba Enterprises comprises of the following business units:

- Business Development
- Nuclear Manufacturing was established to play a key role in nuclear manufacturing for the New Build Project. To this end the business unit obtained ASME accreditation, an essential pre-requisite to nuclear manufacturing
- Industrial Manufacturing primarily does machining of components
- Flosep has two product lines, namely: Drykeep – Used to remove moisture from oil in transformers; and Filters – Used to remove particulates from air
- Project Consulting Services

The historic financial performance of Pelindaba Enterprises is shown below:



Necsa engaged an external consultant to assess the short-term sustainability of Pelindaba Enterprises. The approach followed to undertake this assessment is detailed below.

1 **Sales Prospects**
- Sales Schedule
- Probabilities
- Discussion with Management

2 **Manpower Costs**
- Manpower Schedules from HR
- Re Allocate Staff
- Increases as per HR

3 **Restate Income Statement**
- Running & operational costs based on forecast 2018/19
- Inflation adjustment as per NECSA
- Cost of sales based on projected costs or 20% contribution margin with 50/50 manpower material cost split

Risks

5 **Opportunities**

The primary sales risks confronting Pelindaba Enterprises were identified as follows:

Nuclear Manufacturing

- Reliance on Single Customer – Eskom constitutes 53% of sales in 2019/20.
- Intergroup Sales – constitutes approx. 33.5% of sales in 2019/20
- Limited order book beyond 2019/20

Flosep

- Diminished customer base
- Existing technology and well established competitors
- Sales dependent on R2m capital investment
- Limited expertise still available at Necsa

Industrial Manufacturing

- Non-existent order book (not market competitive). Current services to Group companies can be outsourced.

The recommendations are that Flosep and Industrial Manufacturing should be closed. So far as Nuclear Manufacturing is concerned the possibility of third party investment should be explored by engaging with likely partners such as for example Lesedi, Holtec, Tenex, Urenco, Marubeni, Rosatom and Tractabel.

In line with the proposed realignment of Necsa, Pelindaba Enterprises should exit either by way of closure or sale.

Pelindaba Enterprises 2019/20 Budget is shown below:

	2019/20						
	GE	Business Development	Nuclear Manufacturing (PM)	Industrial Manufacturing	Flosep	PCS	Total
Sales	-	-	75 813 415	-	2 635 416	21 254 370	99 703 201
Salaries	5 252 584	3 649 978	24 970 008	9 920 876	2 071 686	6 678 642	52 543 774
Direct	2 933 042	2 002 001	18 296 882	9 716 864	2 071 686	1 322 947	36 343 422
Contract Work	2 319 542	1 647 976	6 673 126	204 012	-	5 355 695	16 200 351
Recoveries	-	-	-22 728 322	-	-633 780	-5 897 946	-29 260 048
Running Expenses	2 523 222	130 246	62 540 104	3 178 316	3 669 802	23 936 407	95 978 097
Net Margin	-7 775 807	-3 780 223	11 031 625	-13 099 192	-2 472 292	-3 462 733	-19 558 621
Adjustments							
Industrial Manufacturing				13 099 192			13 099 192
Flosep					2 472 292		2 472 292
Consultants						6 952 948	6 952 948
Consultants/Contract Worker	976 379					1 858 146	2 834 525
Adjusted Margin	-6 799 428	-3 780 223	11 031 625	-	-	5 348 361	5 800 335

The above budget for Pelindaba Enterprises is based upon the existing structure with no changes effected. As a result Pelindaba Enterprises contributes R19 million to the R132 million Necsa deficit.

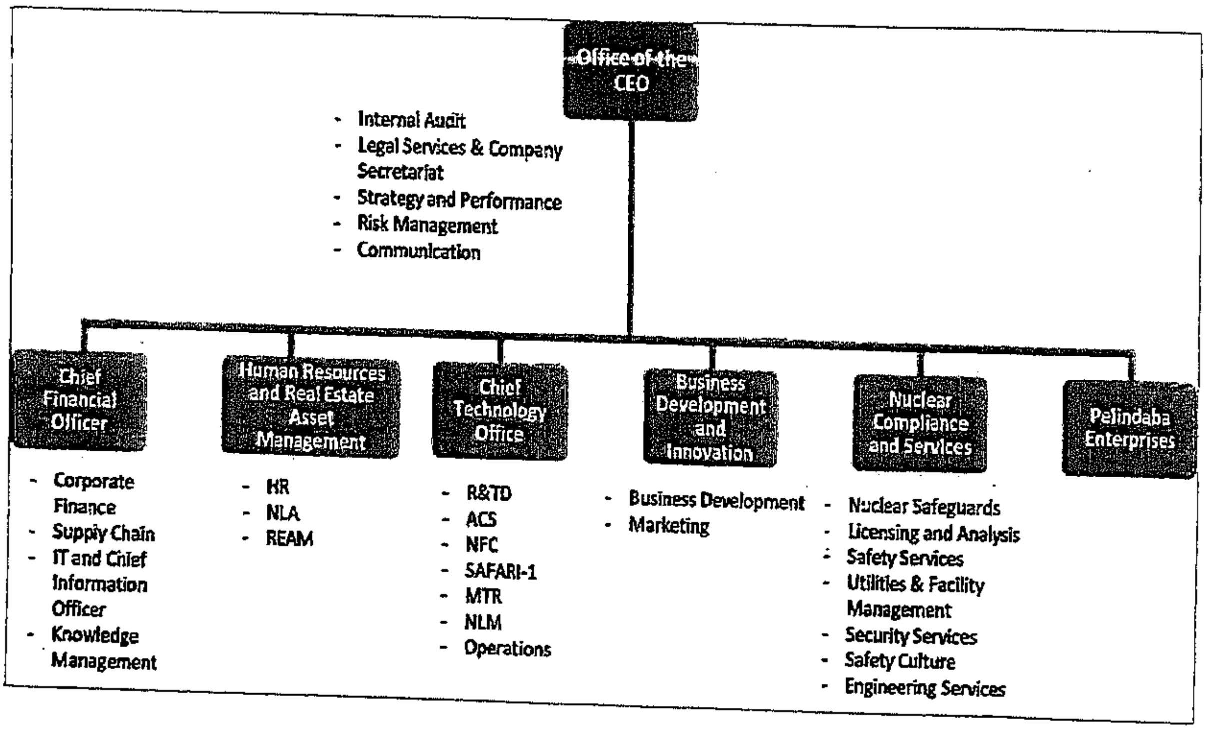
The adjustments shown in the above table are based on the recommendations from the closure of Flosep and Industrial Manufacturing; and rationalisation of some consultants and contractors in Nuclear Manufacturing. Should these changes be effected the restructured Pelindaba Enterprises should at least break even.

7. PELCHEM

At this stage a detailed review of the Pelchem business has not been conducted. The Board of Pelchem has been augmented with 2 new Independent Directors and they will be tasked with conducting an urgent review of the business sustainability.

The Pelchem business activities largely revolve around the HF plant. This particular plant was built back in the Necsa strategic era when they were tasked with the enrichment of uranium for the manufacture of fuel elements for Koeberg. An organization called UCOR responsible for the handling of waste generated on the Pelindaba site (eg resulting from NTP production activities) and also for carrying out Decontamination and Decommissioning (D&D) of nuclear facilities which are no longer used. These buildings are typically contaminated from previous projects and there is an obligation (which has been accepted by the state) to clean these buildings. Previously Necsa received an amount of around R70 million on an annual basis to carry out these D&D activities on behalf of the Government. Toward the end of 2018 the Government took a decision to accelerate these D&D activities and to this end allocated an additional R170 million to Necsa on an annual basis. This means that NLM grows to around a R300 million per annum turnover business making it the second biggest business in the Necsa Group.

Currently Necsa SoC is structured as follows:



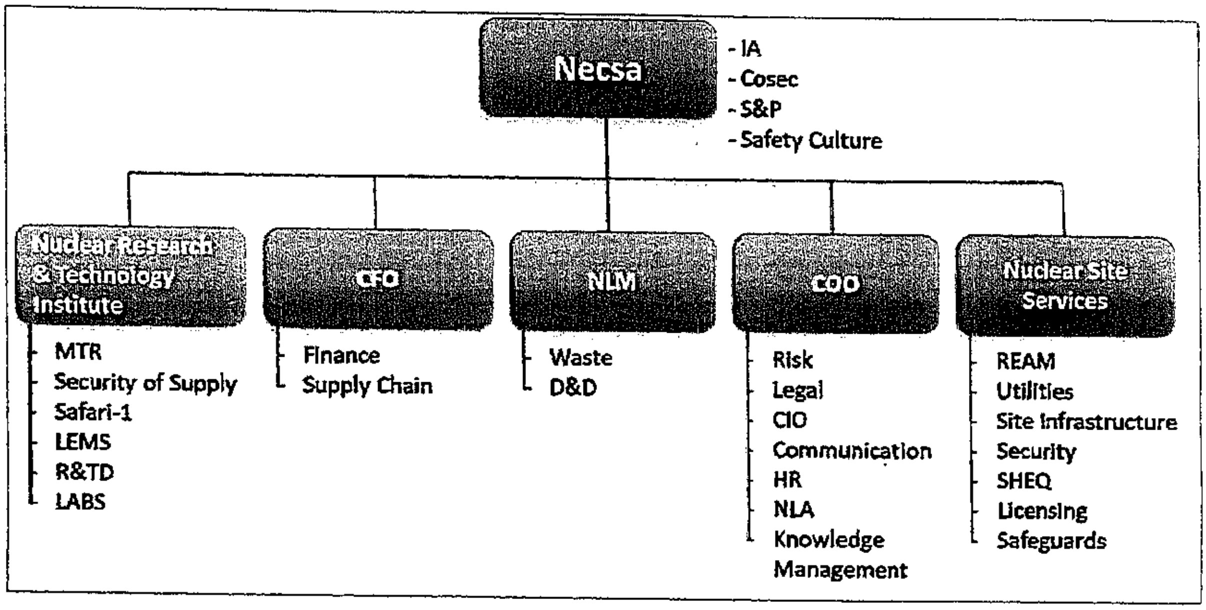
The opinion of the Board was that this structure was not appropriate for an organization with a core R&D mandate. Also it did not lend itself to providing the necessary support to the radioisotope value chain and the development of the NLM business.

With this in mind a new organisation was built around two key Divisions namely the Nuclear Research and Technology Institute (NRTI) and Nuclear Liabilities Management (NLM).

NRTI would comprise of two main activities namely the support of the Mo-99 value chain and R&TD. From a funding perspective NRTI would largely be funded by NTP but the R&TD function within NRTI would mostly be funded by Government Grant. The future medium-term intention is to move the "production arm" of NTP into the Nuclear Research and Technology Institute thereby integrating the complete production value chain for Mo-99. However, this proposal is far reaching and will require a phased approach for its implementation.

NLM would be funded from the D&D Government Grant allocation but this revenue would be supplemented by payment received from NTP for the processing of their waste (Around R50 million pa).

The target organisation structure is shown below:



The function of the remaining three divisions (CFO, COO and Nuclear Site Services) would be to render appropriate support services to NRTI and NLM and exercise certain statutory responsibilities on behalf of Government (eg Safeguards). It is envisaged that this would require a rethink of the scope of the services which would be required typically in the case of Finance and HR. The current Finance and HR functions have served many iterations of the organization spanning many years and it is conceivable that their current structure does not meet the requirements of what is contemplated to be a lean and mean organization. The same might well apply to functions such as SHEQ and Licensing.

The current Necsa site covers some 2361 hectares. A subset of this site which includes all the buildings (159) covers 664 hectares and is encircled by 11 km of security fencing. This site is classified as a National Key Point (NKP) which necessitates extensive security measures. Being a NKP also precludes renting out buildings on the site, many of which are standing empty. It should be borne in mind that the site accommodated between 8000-9000 personnel at the height of the strategic era. The current staff complement housed on the site is around 2000 (Necsa, NTP and Pelchem). With a view to streamlining site service support functions (security, utilities and maintenance) a possible strategy would be to concentrate activities within a portion of the site and reduce the area considered to be a NKP. This would have the additional benefit of being able to let out vacant buildings falling outside the NKP.

Necsa also instituted a program to investigate the feasibility of developing land located outside the security fence. At some time in the future the Board should revisit this program as a possible source of additional revenue.

9. NEXT STEPS

Following approval of the restructuring proposals outlined in this report, further more detailed work would be required to conclude on the final precise restructuring requirements. This would include inter alia:

- Quantifying probable redundancies resulting from the reorganisation. As has been mentioned the personnel budget is out of line with the sources of revenue available to the organisation. Current indications are that a saving of around R200 million would have to be achieved in the personnel budget. This would imply that around 400 members of staff may need to be retrenched at an associated cost of around R106 million
- Undertaking a more detailed assessment on existing personnel and future priorities to determine whether early retirement and possibly offering Voluntary Severance packages may assist in minimising retrenchments
- In parallel with the above savings are to be explored through various other actions such as for example the reduction of the area of the national key point as mentioned

previously and reduction in the size of the vehicle fleet

- Due diligence regarding outstanding contractual obligations that Pelchem has with its existing clients, its outstanding creditors, etc
- Due diligence regarding outstanding contractual obligations that Pelindaba Enterprises has with its existing clients, its outstanding creditors, etc
- Some essential Capex requirements including the following:
  - Replacing the outdated Financial IT System
  - Ageing Site Infrastructure
  - LEMS Facility
  - SAFARI Ageing Management Program
  - New Radiopharmaceutical Production Facility

10. CONCLUDING REMARKS

This document defines the structure of an organization which enables Necsa to deliver on the revised mandate and operate on a financially sustainable basis within the constraints of the allocated Government Grants. The primary focus of the new organization is Research and Development comprising of activities focused on the support of the NTP Mo-99 value chain and the development of new products by the R&TD group which would augment the product portfolio and revenue generation capability of the organization. This new organization would be gearing up to deliver on the increased rate of D&D of historic liabilities in line with the accelerated pace required by Government. The Board considers the target organization to be streamlined and highly efficient and to this end the support services will have to be designed to support this requirement. It would therefore be recommended that once the necessary Governmental approvals have been obtained that the services of professionals, well versed in organizational design, be engaged to facilitate the process. Implicit in the design of this new organization is that significant cost savings should be realized. This would necessitate that all activities be thoroughly reviewed so as to optimize and eradicate unnecessary costs.

This document should serve as an addendum to the Corporate Plan to be submitted on 30 April 2019. It defines the process to be followed in moving from the initial Corporate Plan to that of the target organization.