

**Amendment to the CTF Investment Plan for South Africa:
Reallocation of resources**

Presented to the CTF Trust Fund Committee by

**the Government of South Africa,
African Development Bank, and International Finance Corporation**

May 2015

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Background

1. In November 2009, the CTF Trust Fund Committee (TFC) endorsed South Africa *Country Investment Plan* (CIP), which included a USD 150 million private sector component that targeted investments in renewable energy (RE) and energy efficiency (EE) to address the challenges in the country's energy supply and promote a low carbon growth path. An amount of USD 85 million of this private sector component was allocated to the *Sustainable Energy Acceleration Program* (SEAP), implemented by International Finance Corporation (IFC) and private sector arm of African Development Bank (AfDB) to support pioneering private sector projects in RE. The joint AfDB/IFC SEAP proposal was subsequently approved in October 2010 and program funds are now fully committed to three sub-projects (two under construction and one already in operation).
2. In October 2013, the CTF TFC endorsed the *Update of CTF Country Investment Plan for South Africa*. This endorsement created an allocation of USD 57.5 million to support either a continued work under private sector SEAP or a public sector *Vehicle Efficiency Program*.
3. This amendment presents an update to the October 2013 Update of the CTF Investment Plan for South Africa, proposing to retain the above USD 57.5 million for private sector SEAP and channel these funds through IFC.

Status of the SEAP and solar power in South Africa

4. To date, the SEAP has been supporting South Africa's ambitious Renewable Energy Independent Power Producer Procurement Program (REIPPP). Specifically, CTF funds have been channeled to advance one of the most promising, but novel and costly, RE technologies under the REIPPP – Concentrated Solar Power (CSP). In the first round of the REIPPP in 2011, IFC and CTF provided support to two projects that won the bids in the CSP tendering process: (i) the 100MW parabolic trough Kaxu CSP project; and (ii) the 50MW tower Khi CSP project. The Kaxu project completed construction in February 2015 and became the first operational CSP plant in an emerging market as well as the first operational CSP plant supported by the Climate Investment Funds.
5. Both AfDB and IFC have maintained their strong commitment to the RE sector in South Africa by continuing the development and financing of RE projects. In June 2014, AfDB brought forward the 100 MW parabolic trough Xina CSP project, supported by USD 41.5 million CTF SEAP funding (in ZAR equivalent), as well as by commercial financing from IFC. This project capitalized on the AfDB's experience with the earlier public sector investment into a CSP project with Eskom and into the Ouarzazate CSP Complex in Morocco, both supported by the CTF.
6. Overall, CTF financing has successfully mobilized competitive, long-term investment for 250 MW in CSP capacity and catalyzed significant momentum and impact in RE in South Africa. The government's commitment and improved investment perception have attracted competition into South Africa's nascent CSP industry, and CSP is emerging as the only RE technology that could domestically supply a significant portion of the country's base-load energy need. Innovation, scale, and creation of a track record have helped drive costs of delivered power down by 40% since the first bidding round in 2011. They have also helped demonstrate the key value and benefits of CSP technology: ability to provide utility-scale, reliable base-load power, which can be dispatched according to demand needs, even when the sun is not shining.
7. Meanwhile, due to continued power demand growth, the country's energy generation reserve margin has shrunk and the need for rapid expansion of the country's sustainable generation capacity has become even more acute. As rolling blackouts have become more pronounced and frequent, end-users'

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concerns regarding the reliability of grid power are prompting them to seek back-up solutions, resulting in rapid growth of distributed power generation. This trend makes solar power one of the most favorable options.

8. The Government of South Africa, therefore, continues to support solar and other RE technologies. Despite the impressive performance improvements and cost reductions, RE technologies remain costly, requiring further innovation and scale up, and additional strategic support in the form of concessional finance.

IFC project pipeline

9. IFC has developed a pipeline of solar energy projects that can support further market transformation and contribute to the achievement of the Government's objectives of 17.8 GW in RE generation capacity by 2030 and increased access to reliable sustainable energy.

10. IFC is now engaged in the preparation of a new CSP project that will further promote technological innovation, while continuing to reduce the cost of generation. This project will utilize a more advanced technology – a tower design with molten salt receivers – allowing cost-effective and more efficient application of a larger energy storage capacity and resulting in the ability to better respond to the electricity demand profile.¹ The plant will be the first of its type in Africa and will draw on experience of the only operational plant of this design in the world (Nevada, USA). It will demonstrate the potential of molten salt tower CSP technology to significantly increase efficiency of CSP energy generation and reduce its cost.

11. Furthermore, IFC is engaged in the development of new initiatives to support the innovative use of solar PV technology. These initiatives would aim to demonstrate the commercial viability of solar PV for self-supply of electricity by commercial/industrial clients in South Africa. This type of business model has proven successful in the United States but has not been applied at scale in emerging markets. Nonetheless, there has been consistent consumer demand for this type of innovative business model in South Africa, but untested regulatory frameworks and a dearth of appropriate financing have prevented project implementation.

12. Projects like the ones mentioned above will help further reduce the cost of solar power and, therefore, reduce the tariff burden on South African electricity consumers. In addition, they will: (i) continue promoting familiarity of developers and investors with RE technologies; (ii) capitalize on learning curve effects of CSP plants; (iii) support scale up of new technologies and new business models; (iii) increase local components manufacturing capacity and ability to operations and maintenance services; and (iv) contribute to the global effort to commercialize CSP technology and promote penetration of solar PV.

13. Given the complexity and novelty of the technologies and business models utilized by the pipeline projects, concessional finance is required to absorb the higher technology costs and to protect against residual risks.

¹ The plant is expected to have 12 hours of energy storage capability. In contrast, Khi features energy storage of 2 hours, Kaxu – 2.5 hours, and Xina – 5.4 hours.

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14. In light of the project pipeline discussed above, the Government of South Africa, AfDB, and IFC propose an amendment to the *Update of CTF Investment Plan for South Africa* to reallocate CTF funds from AfDB to IFC in support of the *SEAP* sub-component in CTF South Africa CIP, as indicated in Table 1 below.

Table 1: Proposed Reallocation of CTF Resources, in USD million

Program	Current CIP funding (October 2013)	Reallocation		Funding proposed for endorsement (May 2015)
		AfDB	IFC	
<i>Sustainable Energy Acceleration Program (SEAP) /OR/ Vehicle Efficiency Program</i>	57.5	(- 57.5)		0
<i>Sustainable Energy Acceleration Program (SEAP)</i>	85		(+ 57.5)	142.5
Subtotal	142.5	(- 57.5)	(+ 57.5)	142.5

15. The amendment confirms allocation of the funds to the *SEAP* and changes the implementing entity to IFC to support the above project pipeline.² This project pipeline fully conforms to the objectives, scope, and expected outcomes of the USD 57.5 million allocation endorsed in October 2013 **and** the original *SEAP* program endorsed in November 2009. Concurrently with this amendment, IFC is submitting a proposal for *Expansion of the Approved South Africa SEAP* by increasing its existing allocation by USD 57.5 million.

16. This reallocation will enable CTF to accelerate the utilization of the South Africa CTF funds and allow CTF to support the momentum of innovation in solar power technologies in South Africa.

17. The reallocation remains within the 15% threshold of the total South Africa CTF CIP envelope, however it exceeds the USD 30 million benchmark. Nevertheless, it is recommended that a revision of the CIP not be undertaken at this stage, because:

- There are no material changes in the energy and RE sectors context since the time of the last update of the CTF CIP for South Africa;
- The reallocated amount will be used to achieve the same objective, as was outlined in the *Sustainable Acceleration Energy Program* in the 2013 update, limiting the needed adjustments to the CIP to changing the implementing entity that channels CTF funds;
- The reallocation will lead to similar expected GHG reduction amounts, as the funds will be used to support similar technologies as was outlined in the *Sustainable Energy Acceleration Program* at the time of 2013 update;
- IFC's pipeline fully meets the intended scope and objectives of the original *SEAP* program endorsed in 2010, making it a natural extension of the already successful work;

² For a summary of the changes in the allocations between sub-components in the South Africa CTF Country Plan, please see Table 3 at the end of this note

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- Prompt reallocation will allow speedy development to finance investment sub-projects under the CTF *SEAP*.

18. The proposed reallocation from AfDB to IFC has been discussed, reviewed, and endorsed by the Government of South Africa, AfDB, and IFC, with the understanding that the reallocation will result in accelerated use of the CTF funds and enable CTF to support the momentum of innovation in solar power technologies in South Africa;

19. Expected results framework numbers are indicated in the Table 2 below.

Table 2: Results framework indicators for the additional USD 57.5 million under the *SEAP*

Core Indicator	Original <i>SEAP</i>		This reallocation (additional results)	<i>SEAP</i> after reallocation ³
	At TFC approval	At MDB approval ⁴		
GHG emission avoided, tCO ₂ e/year	954,000	860,000	470,000	1,330,000
Volume of direct finance leveraged, million USD	610	2,200	700	2,900
Installed capacity, MW	260	250	100	350

20. The proposal for *Expansion of the Approved South Africa SEAP Program* is submitted by IFC concurrently with this Amendment.

³ Total amounts for the *SEAP* after reallocation include expected results for already approved sub-projects under the original *SEAP* (at MDB approval) and additional results expected to be achieved with support of USD 57.5 million.

⁴ Data are based on expected results for sub-projects already approved by respective MDB boards and being either under construction or in operation

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Table 3: Summary of CTF Allocations in the Country Investment Plan for South Africa

Country Investment Plan (2009)	IBRD	AfDB		IFC	Allocation by Sub- Component
		Public sector	Private sector		
<i>Eskom Wind</i>	50	50			100
<i>Eskom CSP</i>	200	50			250
<i>SEAP</i>			42.5	42.5	85
<i>Solar Water Heaters</i>			25	25	50
<i>EE Financing</i>			7.5	7.5	15
Allocation by MDB	250	100	75	75	500

Update to Country Investment Plan (2013)	IBRD	AfDB		IFC	Allocation by Sub- Component
		Public sector	Private sector		
<i>Eskom Wind</i>	50	50			100
<i>Eskom CSP</i>	200	50			250
<i>SEAP</i>			42.5 [+ 57.5] ⁵	42.5	85 [+57.5]
<i>Solar Water Heaters</i>			25 (- 25)	25 (- 25)	Dropped
<i>EE Financing</i>			7.5 (-7.5)	7.5	7.5
<i>Vehicle Efficiency Program [Alternative to SEAP]</i>		[+ 57.5]			[+57.5]
Allocation by MDB	250	100	42.5	50	500
			[+ 57.5]		

This Amendment (2015)	IBRD	AfDB		IFC	Allocation by Sub- Component
		Public sector	Private sector		
<i>Eskom Wind</i>	50	50			100
<i>Eskom CSP</i>	200	50			250
<i>SEAP</i>			42.5 [+57.5] (- 57.5)	42.5 (+ 57.5)	142.5
<i>EE Financing</i>				7.5	7.5
Allocation by MDB	250	100	42.5	107.5	500

⁵ Numbers in red are the reallocated amounts. Square brackets indicate funds allocated to either SEAP or Vehicle Efficiency Program