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Financing Clean Energy Innovation

Case for an Indian Business Demonstration Facility

Kanika Chawla and
Manu Aggarwal

Feasibility Study | July 2019

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The **Council on Energy, Environment and Water** (http://ceew.in/) is one of South Asia's leading not-for-profit policy research institutions. The Council uses data, integrated analysis, and strategic outreach to explain—and change—the use, reuse, and misuse of resources. It prides itself on the independence of its high-quality research, develops partnerships with public and private institutions, and engages with the wider public. In 2019, CEEW has once again been featured across nine categories in the '2018 Global Go To Think Tank Index Report'. It has also been consistently ranked among the world's top climate change think tanks. Follow us on Twitter @CEEWIndia for the latest updates.

The **CEEW Centre for Energy Finance (CEF)** is an initiative of the Council on Energy, Environment and Water (CEEW), one of South Asia's leading think tanks. CEF acts as a non-partisan market observer and driver that monitors, develops, tests, and deploys financial solutions to advance the energy transition. It aims to help deepen markets, increase transparency, and attract capital in clean energy sectors in emerging economies. It achieves this by comprehensively tracking, interpreting, and responding to developments in the energy markets while also bridging gaps between governments, industry, and financiers.

Shakti Sustainable Energy Foundation works to strengthen the energy security of the country by aiding the design and implementation of policies that encourage energy efficiency, renewable energy and sustainable transport solutions, with an emphasis on sub-sectors with the most energy saving potential. Working together with policymakers, civil society, academia, industry, and other partners, we take concerted action to help chart out a sustainable energy future for India (www.shaktifoundation.in).

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CEEW Centre for Energy Finance

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The need for enabling an efficient and timely energy transition is growing in emerging economies. In response, CEF focuses on developing fit-for-purpose market-responsive financial products. A robust energy transition requires deep markets, which need continuous monitoring, support, and course correction. By designing financial solutions and providing near-real-time analysis of current and emerging clean energy markets, CEF builds confidence and coherence among key actors, reduces information asymmetry, and bridges the financial gap.

Financing the energy transition in emerging economies

The clean energy transition is gaining momentum across the world with cumulative renewable energy installation crossing 1000 GW in 2018. Several emerging markets see renewable energy markets of significant scale. However, these markets are young and prone to challenges that could inhibit or reverse the recent advances. Emerging economies lack well-functioning markets. That makes investment in clean technologies risky and prevents capital from flowing from where it is in surplus to regions where it is most needed. CEF addresses the urgent need for increasing the flow and affordability of private capital into clean energy markets in emerging economies.

CEF's focus: analysis and solutions

CEF has a twin focus on markets and solutions. CEF's market analysis covers energy transition–related sectors on both the supply side (solar, wind, energy storage) and demand side (electric vehicles, distributed renewable energy applications). It creates open source data sets, salient and timely analysis, and market trend studies.

CEF's solution-focused work will enable the flow of new and more affordable capital into clean energy sectors. These solutions will be designed to address specific market risks that block capital flows. These will include designing, implementation support, and evaluation of policy instruments, insurance products, and incubation funds.

About the authors

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Kanika Chawla is a policy specialist working at the intersection of renewable energy and financial markets. She is the Director of the CEEW Centre on Energy Finance and also manages The Council's research and outreach in renewable energy policy, regulation, markets, and socio-economic value. She is actively engaged with private and public enterprises within and outside India in designing and developing financial de-risking instruments. Kanika has an MSc in Economics and Development Economics from the University of Nottingham, and an undergraduate honours degree in Economics from Miranda House, University of Delhi.

'In advancing to a more sustainable, nimble, and secure energy future, there is a need to encourage, support, and scale innovation. The Business Demonstration Facility identifies this need, and recognises that innovation need not be just technological, but also financial or commercial, and finds a way to use market making capital to take positively disruptive innovation to scale. '

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Manu is a climate and energy expert and works on the efficient allocation of risks to minimise resource wastage. His current research interests lie at the intersection of development policy, finance, technology, and institutions. He designs market-transformative insurance products, and restructures commercial contracts to de-risk renewables. In his previous avatars, he worked in business analytics, energy commodities trading, and international development. Manu is a graduate in Mechanical Engineering from Thapar University and is waiting for his CFA charter from the CFA Institute, USA.

"Historically, India has been a laggard in developing novel technologies. But for the ongoing Indian energy transition to be cost-efficient and equitable, India has to lead the global south in developing new technologies from the front. The proposed Facility, supporting promising technologies ánd commercial innovation reach market, could be an important step in that direction."

Contents

Abbreviations

AIF	alternative investment fund
BDF	business development facility
CIS	collective investment scheme
DFI	development finance institution
DRE	distributed renewable energy
EE	energy efficiency
EV	electric vehicle
FMU	fund management unit
GHG	greenhouse gas
GW	gigawatt
IEU	independent evaluation unit
LLP	limited liability partnership
MNRE	Ministry of New and Renewable Energy
NBFC	non-banking finance company
PE	private equity
PPM	private placement memorandum
R&D	research and development
RBI	Reserve Bank of India
RE	renewable energy
SEBI	Securities Exchange Board of India
SME	small and medium enterprise
SVF	social venture fund
TAU	technical assessment unit
VC	venture capital

Overview

Emerging technologies have a business life cycle: research and development (R&D), demonstration, and eventual commercialisation. Clean energy projects have long timelines, large upfront capital costs, low returns, and high risk. This is especially true for innovations in their nascent stages that have not yet achieved a state of guaranteed returns.

Grants tend to favour technical R&D and smaller demonstration projects; private funds are invested once large-scale profitability is achieved. Traditional finance outlets are usually too risk-averse to provide the patient capital required. There is little investment in the early stages of development of new clean energy (and related) technology. Despite recent advances in the solar and wind sectors in India, therefore, annual investment in its clean energy market has stagnated at about USD ten billion for several years now.

Market evidence suggests that clean energy start-ups struggle in raising capital in what is identified as the 'second valley of death' – the prototype-to-market stage. Entrepreneurs experiment with the business models of a technically proven innovation to take it to market and prove its profitability, but in a considerable financial vacuum.

This vacuum can be filled by a business development facility (the Facility), an entity we propose. The Facility will aid in the energy transition in India by creating market depth in its underserved and new clean energy sectors. To do so, it will leverage patient, low-cost, risk-friendly capital, raised predominantly from philanthropic sources and using market principles and mechanisms, to scale business and technological innovations.

This design study presents the structure and legal design of the Facility.

1. Context

India has emerged as one of the champions of the global energy transition. At the end of 2018, India had the world's fourth largest installed capacity in wind energy and the fifth largest installed capacity in solar energy (IRENA 2019). The country targets 175 gigawatt GW of renewable energy (RE) installed capacity by 2022, including 100 GW of solar and 60 GW of wind. And by its Nationally Determined Contributions under the Paris Agreement, India is committed to ensuring that by 2030, forty per cent of its installed capacity is based on non-fossil fuels.

In recent years, several advances have been made in the solar and wind sectors in India, and the capacity of renewables added with the same investment has risen year on year, but the flow of investment into India's clean energy market has plateaued at about USD 10 billion for several years.

Although this inflow is the second highest in a developing country, it is significantly short of the investment in China (USD 126.6 billion in 2017), and a very small proportion of global flows (USD 333 billion in 2017) (BNEF 2018). And much of the investment has been in utility-scale solar and wind projects; there has been limited interest in early-stage technology development or innovation of business models for scaling clean energy applications.

2. Bridging the gap

Clean energy start-ups struggle to raise capital in the 'second valley of death' – the prototype-to-market stage. The risk profiles of traditional finance outlets are often too conservative to provide the required patient capital for clean energy investments that have longer timelines, larger upfront capital costs, lower returns, and higher risks than other early-stage investments. This is especially true for innovations in their nascent stages that have not yet achieved scale or a desirable level of revenue.

Within the business life cycle of emerging technologies (R&D, demonstration, and commercialisation), grants tend to fund technical R&D and smaller demonstration projects; private funds are invested once large-scale profitability is achieved. There is a considerable financial vacuum between these two events, in which entrepreneurs must experiment with the business model of a technically proven innovation to prove its profitability.

Most innovation labs and accelerators support entrepreneurs in developing an investment pipeline for traditional venture capital (VCs) to finance. Government initiatives such as the Special Area Demonstration Project fund of the Ministry of Renewable Energy (MNRE) seem to focus on large-scale projects; to be selected, organisations must have mature market models and substantial capital stock – conditions impossible for early-stage ventures to meet. Multilateral

organisations finance technology demonstrations, but not at the scale required, and their lines of credit often result in the crowding out of private investment by providing more-than-favourable terms to investees.

Existing initiatives

Initiatives that foster an environment that helps clean energy innovation projects reach commercial scale are needed urgently. Several public and private initiatives worldwide direct capital towards such projects. CEEW CEF evaluated thirty-two existing (and concluded) initiatives for landscaping and learning from their successes and failures (Annexure A). Of these, eighty-five per cent are based in and targeted at developed countries and only nine per cent in developing countries; six per cent of the initiatives reviewed (two of thirty-two) took a global view, with multiple entities coming together to support clean energy innovation. Our evaluation finds that certain features are common to these initiatives. Given the political economy of India's energy transition, an India-specific innovation support facility must have these features.

a) Domestic priorities matter

Developing countries urgently need support in innovation. But most of the existing initiatives analysed focus on national borders or a region, such as the European Union (EU), and respond to specific, domestic market needs. These inward-looking initiatives support foreign participants only if they fulfil certain conditions, such as partnering with a local organisation or university, or contributing substantial value addition or technological advancement for the domestic industry.

Design input for the Facility

Many domestic priorities impact climate action, but the areas of innovation need to be aligned with domestic priorities. The proposed Facility will focus on innovations (both Indian and foreign start-ups) that support the energy transition in India.

b) Inventiveness and scalability are the key investing criteria for existing initiatives

What criteria do these initiatives use to select projects to support? Little information is available, but the proposed project should be inventive, scalable, and aligned with the objectives of the initiative. The initiatives compare the value addition by the proposed technology to the status quo. They determine the impact of the innovation in terms of emission abatement and the ability to scale in terms of expansion, replicability, and profitability

Design input for the Facility

The proposed Facility will support novel, scalable, and inventive start-ups in sectors related to the energy transition.

c) Public monies capitalise most existing initiatives

Public and philanthropic monies play a central role in advancing these high-risk, potentially catalytic projects, but multiple sources of funding need to work together.

Design input for the Facility

The Facility, initially, will be funded primarily by philanthropic monies. Different investors have different risk appetites. For example, funding start-ups does not fit with the risk–return equation of the private sector. The Facility will also aim to pool in high-impact private capital and domestic public monies, especially once it shows some initial success.

> **Public money funds more than 70 per cent of the initiatives analysed (23 of32); private sector entities fund two, and four are partnerships between the government and private sector players (industries or philanthropies).**

d) Grant and equity investments are the preferred mode of investing in existing initiatives

Mostly, the initiatives use grants at the R&D stage; to invest or disburse funds for market demonstration projects, these use equity and debt funding.

Design input for the Facility

The Facility will focus on equity and grant investments at preferential terms, but its scope will not be limited to these; its scope will be subject to the modes of investing available to the selected legal investment vehicle.

e) Renewable energy (RE) dominates the mandate of existing initiatives

The sectors are strongly interlinked, and several initiatives, especially those established recently, take the broad view and include several energy-transition sectors such as RE, EE, EVs, and grid dispatch.

> Most initiatives focus on RE, but attention is given also to EE and grid dispatch.

Funding of demonstration projects in the clean energy sectors – RE, energy efficiency (EE), electric vehicles (EVs), distributed renewable energy (DRE), and grid dispatch – increased in the developed world over the past ten years, but developing countries mostly lagged behind on this front. Developing economies have limited resources but immense potential for innovation that can be scaled to abate carbon emissions.

Design input for the Facility

The proposed Facility will have a broad, integrated scope. It will focus on piloting and commercialising technical innovations in RE, EE, EVs, and grid dispatch. Its board will identify the gap and specify its mandate through three-year and five-year strategy plans that reflect the market and respond to it.

f) Demonstration is important but linkages to the complete innovation value chain is the key

Only six initiatives work exclusively on demonstration; fifteen work on multiple stages of the value chain – R&D, demonstration, and commercialisation.

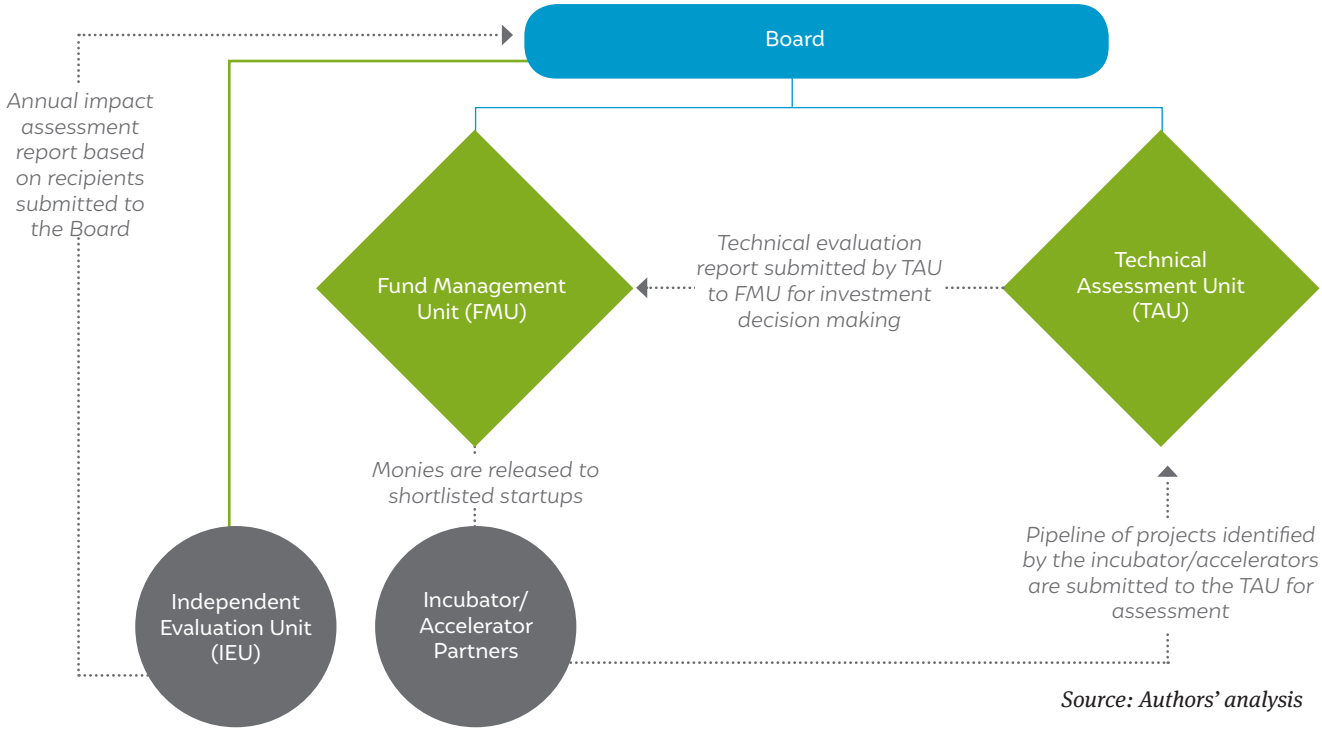
Design input for the Facility

India has R&D centres and schemes to promote technical innovation in the sectors related to the energy transition, but piloting and scaling innovation needs to improve. The Facility will focus on the post-prototype phase to support impactful innovations reach market scale.

3. Facility design and governance

The Facility will have a modular design. Each module will serve a unique, specialised function for impact and efficiency. There will be five functionary groups: the board, fund management unit (FMU), technical assessment unit (TAU), incubator/accelerator partners, and the independent evaluation unit (IEU).

Figure 1: Schematic design of the Facility



Source: Authors' analysis

In order to fill the funding gap for early stage market scaling of clean energy innovation the proposed Facility would work along with the existing ecosystem of accelerators and incubators, and leverage patient, low cost, risk loving capital, from philanthropic and public sources, using market principles and mechanisms to scale innovations (business and technological) in underserved and new clean energy sectors. This, in turn, will create market depth in new sectors and aid the efficient and timely advancement of the energy transition in India.

3.1 Schematic design

Board

The board will be constituted of contributors to the capitalisation of the Facility. Capital contributions of and in excess of USD 200,000 will be granted a single seat on the board. Each seat will be granted one vote. The board members may appoint no more than five independent board members. These appointments will be based on a two-thirds majority vote of the existing capital-contributing board members. The board will appoint an independent FMU to operate the capital on behalf of the Facility. The board will also appoint an independent TAU. It will evaluate the proposals and provide the FMU its opinion. The board will not make investment decisions, but it will determine checks and balances, and it will monitor the FMU's decisions and operations and review these periodically.

Fund management unit (FMU)

The board will award a limited liability partnership (LLP) company a cost-plus fund management contract and appoint it its FMU. The FMU will operate as the Facility's secretariat on a not-for-profit, not-for-loss model. The board and the FMU will evaluate the technical expert assessment and the FMU will invest in line with the board's priorities.

Technical assessment unit (TAU)

Capital flows into clean energy innovation are inadequate in part because the investment decision-making expertise is conventional. The TAU, an independent committee of multidisciplinary experts, will perform the techno-economic assessment of the project pipeline; the FMU will conduct the financial review. The TAU is independent of the FMU and not a subsidiary; they will collaborate in making investment decisions without any conflict of interest. The TAU will assess if the project's catalytic nature and impact potential is in line with the board's priorities.

Incubator/accelerator partners

Incubators and accelerators support innovation and entrepreneurs in this sector. The Facility will collaborate with them (possibly one per area of focus) to identify prospective recipients that can scale innovation in the clean energy sector and advance the pace of the energy transition.

Independent evaluation unit (IEU)

The Board will appoint an IEU. The IEU will be independent in operations and reporting. It will annually evaluate all the projects invested in and create an impact report. The report will provide insights on priority areas and their suitability towards advancing the end goals to the Board, FMU, and TAU. The report will also provide inputs on identifying priority areas for future investments. As the clean energy market evolves, the independent evaluation will help the Facility adapt to the evolving ecosystem, correct its course, and identify new, disruptive ideas.

3.2 Values

The success of the Facility, as evaluated either by the IEU or the reviews of the Board, will be contingent on some key values. Even as the kinds of projects and priority areas of the Facility evolve over time, keeping pace with the changes in the energy ecosystem, these values will remain constant and guide the actions of the Facility.

The guiding values of the Facility are independence, innovation, additionality, catalysis, and impact.

Independence

The Facility's investment decisions must be based on objective metrics established jointly by the board, FMU, and TAU. The board must avoid bias and any pressure on investment decisions.

Innovation

The Facility will be designed to support new technologies, applications, business models, and financial designs; therefore, it must invest only in projects that are novel in the Indian context.

Additionality

The Facility must invest in projects that would not be able to raise capital from conventional sources. However, the Facility must never crowd out other sources of capital.

Catalysis

The Facility's investments must be catalytic. It should drive in additional capital, preferably from private sources, or help disrupt the market and accelerate the pace of the energy transition.

Impact

An investment's impact is best assessed by its scalability and greenhouse gas (GHG) abatement potential. The Facility should invest in projects that can reach scale and have a large market rather than merely niche applications. These projects should also be replicable. The GHG abatement potential of each intervention combined with its potential scale can provide a good estimation of an investment's impact potential.

4. Facility structure

The Facility will aim to pilot and commercialise technical innovations for the Indian market. Therefore, the Facility must be structured according to Indian laws and regulations. CEEW CEF explored the various legal structures allowed under the Indian regulations.

CEEW CEF explored structures other than the alternative investment fund (AIF) category, such as non-banking finance company (NBFC) and collective investment scheme (CIS), and found that neither can be used to achieve the desired goals.

To operate as an NBFC, a company needs a licence from the Reserve Bank of India (RBI). To get that licence, the company must meet certain criteria. An NBFC is a vehicle used for making return-based investments; it is not eligible for government grants for tax or otherwise. In an NBFC, the pool of investment can be generated only by way of equity participation from its shareholders, which requires compliance with a lot of NBFC regulations and the Companies Act, 2013. The number of shareholders is restricted to two hundred to enable an NBFC to operate a private limited company. Given the plethora of compliances and restrictions, NBFC is not a suitable structure for the Facility.

A CIS raises money from people at large for investment only in one, specific, returns-based project; it cannot be used to achieve the desired goals.

Therefore, the FMU of the Facility, incorporated as an LLP, will be the promoter of the AIF I category of a social venture fund (SVF). The board of the Facility will serve as the board of the LLP (its capital contributors) and govern the TAU.

Table 1: Facility mandate fits the social venture fund (SVF) sub-category of alternate investment fund (AIF) category I

Parameters	AIF I (VC fund)	AIF I (SVF)	AIF I (SME fund)	AIF I (infrastructure fund)	AIF I (others)	AIF II (PE and debt fund)	AIF III (hedge fund)
Ability to meet the main objective of investing philanthropic money in energy start-ups	N	Y	N	N	N	N	N
Fund raising							
Ability to raise concessional public monies from governments/DFI/ philanthropies	N	Y	N	N	N	N	N
Ability to raise private capital	Y	Y	Y	Y	Y	Y	Y
Ability to realise profits even when profits were not expected	Y	Y	Y	Y	Y	Y	Y
Mode of investing (contingent upon the private placement memorandum (PPM) and final investment proposal)							
Directly taking positions in start-ups	Y	Y	N	N	N	Y	N
Co-investing along with other funds in specific transactions	Y	Y	Y	Y	Y	Y	N
Investing lump sum in other funds	Y	Y	Y	Y	Y	Y	N
Ability to raise monies at a later stage (open ended)	Y but has to file a new scheme every time	Y but has to file a new scheme every time	Y but has to file a new scheme every time	Y but has to file a new scheme every time	Y but has to file a new scheme every time	Y but has to file a new scheme every time	Y but has to file a new scheme every time
Type of investments allowed							
Loans	N	N	N	N	N	Y but a final decision is taken at the time of PPM	N
Equity stakes	Y	Y	Y	Y	Y	Y	Y
Guarantees	N	N	N	N	N	N	N

Source: Authors' analysis; see Annexure B for details on the Alternative Investment Fund category

Key features

The Facility will need to meet the regulatory requirements of a Social Venture Fund (SVF).

Estimated size

The minimum corpus required to float an SVF is INR twenty crores (around USD three million[1]).

Source of capital

Domestic and international philanthropic organisations, private impact capital, international and domestic public monies, and even the private sector can capitalise the Facility, but most such initiatives are capitalised by public monies (Section 2.1). CEEW CEF envisages that international philanthropic organisations and domestic public money will provide most of the capitalisation monies. International philanthropic organisations are trying to pivot their strategies around catalytic capital instead of plain grants (T. 2019) and are supposed to capitalise the first tranche of the Facility.

Mode of investing

The Facility will predominantly take equity positions in technically proven technologies in the energy transition–related sectors. It will do so on preferential terms so as to crowd-in additional private capital.

Guiding investment principles

Investments made by the Facility will be long-term, catalytic, and market-making.

Sectoral focus

The Facility will invest in sectors related to the energy transition: RE, EE, EVs, grid dispatch, and distributed renewable energy (DRE). Its multi-year focus will be determined through three-year strategy plans

Jurisdiction

The Facility will be incorporated in India since the social venture category requires so.

Business model

The Facility will be a self-sustaining, non-profit, non-loss entity. All returns will be ploughed back into the capital pool for redeployment.

5. Operationalising the Facility

Once established, the board will commit the capital required, incorporate the FMU as an LLP, and appoint a TAU; formulate the investment and liability management policy; develop model collaboration terms and agreements; establish the operations budget; and design an organogram for internal capacity.

All these steps will require deliberations within the Board. Its priorities, decided in consultation with the TAU and FMU, will influence these decisions. Once these decisions are made, the LLP can apply to be the manager of an SVF and begin operations.

This design study assesses the feasibility of such a Facility. Additional design and feasibility elements will be added as the Facility moves closer to operationalisation.

6. References

BNEF. 2018. *Clean energy investment trends, 2018*. BNEF, olheim, . http://www.iberglobal.com/files/2018/renewable_trends.pdf.

IRENA. 2019. *Renewable capacity statistics 2019*. New Delhi: IRENA. https://www.irena.org/publications/2019/Mar/Renewable-Capacity-Statistics-2019.

T., John D. and Catherine. 2019. *Catalytic Capital Consortium*. https://www.macfound.org/programs/catalytic-capital-consortium/.

1 USD 1 = INR 70. INR 20 crore is USD 2.86 million, rounded off to USD 3 million.

7. Annexures

A

Major existing initiatives

No.	Initiative	Country of origin	Sponsors (private/ public/ joint)	Mandate (sector: RE, EE, EV, and grid dispatch)	Mandate (geography)	R&D and demonstration	Investment type (equity, debt, hybrid, grant-based, etc.)
1	ARPA-E	Developed	Government	RE, EE, EV, grid dispatch	Domestic	Demonstration and commercialisation	Equity funding, provides a grant in rare circumstances
2	Greentown Labs	Developed	Private	RE, EE	Domestic	Demonstration and commercialisation	Incubator
3	Energy Efficiency and Conservation Authority	Developed	Government	EV, EE, RE	Domestic	Demonstration	Pay 40% of the project cost
4	European Commission's Directorate-General for Climate Action (DG CLIMA) NER300	Developed	Government	RE, carbon capture and storage (CCS)	Domestic	Demonstration	Grant
5	European Strategic Energy Technology Plan (SET Plan)	Developed	Government	RE, EE	Regional	Demonstration	Grant
6	Global Energy Efficiency and Renewable Energy Fund (GEEREF)	Developed	Public and private	RE, EE	International-Developing	Demonstration and commercialisation	Equity finance
7	Energy Technology Development and Demonstration Program	Developed	Government	RE, EE, grid dispatch	Domestic	R&D and demonstration	Grant
8	Smart Grid Demonstration Program	Developed	Government and private	grid dispatch	Domestic	Demonstration	Equity funding
9	InnovFin Energy Demo Projects	Developed	Government	RE	Domestic and selected others	Demonstration	Loan guarantees or equity financing
10	Better Buildings Initiative	Developed	Government	EE and RE	Domestic	Demonstration and scale	Grant
11	Mission Innovation	Global	Government	RE, EE, grid dispatch	Global	R&D	Public R&D budgets as grants
12	Breakthrough Energy Coalition	Global	Private Investors	RE, EE, EV, grid dispatch	Global	R&D and demonstration	Equity
13	Masdar Institute Solar Platform	Developing	Government	RE	Global	R&D	Grant
14	REMOTE under Northern Periphery Programme	Developed	Government	RE	Domestic	Development and Demonstration	No information
15	Projects under the Office of Energy Efficiency and Renewable Energy	Developed	Government	RE, EE, EV, grid dispatch	Domestic	R&D, demonstration, and deployment	Equity finance

No.	Initiative	Country of origin	Sponsors (private/ public/ joint)	Mandate (sector: RE, EE, EV, and grid dispatch)	Mandate (geography)	R&D and demonstration	Investment type (equity, debt, hybrid, grant-based, etc.)
16	Innovation Fund under Clean Energy Finance Corporation	Developed	Government	RE, EE, EV, grid dispatch	Domestic	Demonstration	Equity finance
17	Advancing Renewables under ARENA	Developed	Government	RE, EE, EV, grid dispatch	Domestic	Development, demonstration, and pre-commercial deployment	Grant but it could be converted to equity or debt
18	Electric Program Investment Charge Program under PG&E	Developed	Government and Private	RE, grid dispatch	Domestic	Demonstration and deployment	Grant
19	Horizon 2020	Developed	Government	RE, EE, grid dispatch	Regional	R&D, demonstration, and deployment	Grant
20	International Energy Demonstration Fund	Developed	Government	RE, grid dispatch	Domestic	Demonstration	Funds up to 50% of total project costs
21	National Renewable Energy Laboratory (NREL)	Developed	Government	RE, EE, EV, grid dispatch	Domestic	R&D, testing and deployment	
22	Small Business Research Initiative (SBRI)	Developed	Government	EE, EV		Development and demonstration	
23	Lawrence Berkeley National Laboratory	Developed	Government	RE, EE, grid dispatch	Domestic	R&D, testing and deployment	
24	ORE Catapult	Developed	Government	Offshore RE		Development to demonstration and commercialisation	
25	New Energy and Industrial Technology Development Organization (NEDO)	Developed	Government	RE, EE, EV, grid dispatch		R&D, demonstration	
26	South Africa National Energy Development Institute (SANEDI)	Developing	Government	RE, EE, EV, grid dispatch		R&D, demonstration and deployment	
27	European Energy Research Alliance (EERA)	Developed	Public, private, and philanthropic	RE, EE, EV, grid dispatch	Regional	R&D	
28	Centre for Renewable Energy & Sustainable Technologies (CREST)	Developed	Government	RE	Domestic	R&D and demonstration	
29	Ministry of New and Renewable Energy	Developing	Government	RE, grid dispatch	Domestic	R&D and demonstration	
30	European Energy Programme for Recovery	Developed	Government	RE (Offshore Wind)	Domestic		Grants
31	European Research Council	Developed	Government		Domestic	R&D and demonstration	Grants
32	Interact Climate Change Facility (ICCF)	Developed	Government and private	RE, EE	International-Developing countries		Senior loans and mezzanine debt

B

Alternative investment funds (AIFs): Overview

Alternative investment funds (AIFs) are governed by the Securities Exchange Board of India (SEBI) vide its Alternative Investment Funds Regulations, 2012 (hereinafter referred to as the AIF Regulations).

Regulation 2(b) of the AIF Regulations defines an AIF as any fund established or incorporated in India in the form of a trust or a company or an LLP or a body corporate which is

- a privately pooled investment vehicle which collects funds from investors, whether Indian or foreign, for investing in accordance with a defined investment policy for the benefit of its investors; and
- is not covered under the Securities and Exchange Board of India (Mutual Funds) Regulations, 1996, Securities and Exchange Board of India (Collective Investment Schemes) Regulations, 1999 or any other regulations of the Board to regulate fund management activities.

Prior to commencement of the registration process such an entity (which is proposed to be registered as an AIF) should be duly incorporated in terms of the applicable laws. If the application of registration is rejected, such an entity would continue to exist in terms of the legislation applicable to such an entity.

AIF categories

An entity desirous of being registered as an AIF must seek such registration under one of the following three categories (and one of the sub-categories in case of Category I Alternative Investment Fund) based on the investment objectives of the proposed AIF:

Category I Alternative Investment Fund (Category I AIF), or

Category I AIF Venture Capital Fund, or

Category I AIF Social Venture Fund, or

Category I AIF SME Fund, or

Category I AIF Infrastructure Fund, or

Category I AIF Other

Category II Alternative Investment Fund (Category II AIF), or

Category III Alternative Investment Fund (Category III AIF).

Category I AIFs are generally perceived to have *positive spill-over effects on the economy* and for which SEBI or the Government of India or other regulators in India might consider providing *incentives or concessions* and such funds which are formed as trusts or companies shall be construed as a VC company or fund as specified under sub-section (23FB) of Section 10 of the Income Tax Act, 1961. The sub-categories of Category I include Venture Capital Fund, Social Venture Fund, SMEs, Infrastructure Fund, and Other.

Category II AIFs do not fall in Category I or Category III and do not undertake leverage or borrowing other than to meet day-to-day operational requirements and as permitted in these regulations.

Category III AIFs employ diverse or complex trading strategies and may employ leverage including through investment in listed or unlisted derivatives. This includes hedge funds or funds which trade with a view to make short-term returns or other, open-ended funds and for which no specific incentives or concessions are given by the government or any other regulator.

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