CASE STUDY | MAY 2022

Developing the Solar Market in Uruguay

CONVERGENCE
BLENDING GLOBAL FINANCE

C2F
CANADIAN CLIMATE FUND
FOR THE PRIVATE SECTOR IN THE AMERICAS

IDB | Invest

Executive Summary

In 2013, the Government of Uruguay launched a 200MW tender program to attract private sector participation in the development of solar photovoltaic (PV) power plants. By opening up the renewable energy sector to private ownership, the government aimed to increase the share of non-conventional renewable energy in Uruguay's energy matrix, thereby easing the country's dependence on strained hydroelectric power generation and costly, high-emission fossil fuel imports.

IDB Invest and the Canadian Climate Fund for the Private Sector in the Americas (C2F) addressed the primary market barriers to institutional investor investment in Uruguay's nascent solar market. Their joint participation reduced counterparty risk and improved project bankability. Post construction phase, IDB Invest's A / B bond product allowed for project refinancing through an instrument that appealed to investors with an appetite for long-term assets. IDB Invest and C2F's participation demonstrates a series of key insights for overcoming the inherent challenges of project finance in an emerging sector and provides a replicable model for how to draw in institutional investors to renewable energy financing in Latin America;

- Blended finance can help bridge the gap to market maturity.
- Blended finance can be an effective tool to incentivize gender impact.
- Blended finance structures demonstrate the benefits that development banks can bring to private investors.
- Where pipeline is sufficient, taking a programmatic approach to blended finance can produce greater sector impact than ad hoc investing.
- Fit-for-purpose financing can tap into new investor sets.

SYNOPSIS

Donor Capital Pool	Canadian Climate Fund for the Private Sector in the Americas (C2F)
Donor Mandate	Catalyze greater private sector investment in projects combatting climate change in Latin America
Underlying Projects	La Jacinta (64.8MW), Natelu Yarnel (19MW), Casablanca Giacote (68.25MW)
Country	Uruguay
Construction Costs	***La Jacinta - $102 million*** • C2F commitment - $25 million ***Natelu Yarnel - $33.05 million*** • C2F commitment - $12.4 million ***Casablanca Giacote - $121.5 million*** • C2F commitment - $10 million
Refinancing Structure	***La Jacinta A / B bond*** • A loan - 25-year, $7.2 million • B bond – 25-year, $58.6 million ***Natelu Yarnel A / B bond*** • A loan – 20-year, $3 million • B bond – 20-year, $27 million
Aggregate Impact Targets	• Additional 150MW of installed clean energy capacity • ~111.5 thousand tCo2eq avoided • ~1900 construction jobs created

Introduction

Over the past decade, Uruguay has become a world leader in the transition to utility-scale renewable energy. In 2005, less than 40% of the national energy matrix was renewable energy sources. Today, that proportion has increased to over 60%, with 98% of electricity generation coming from renewable energy.

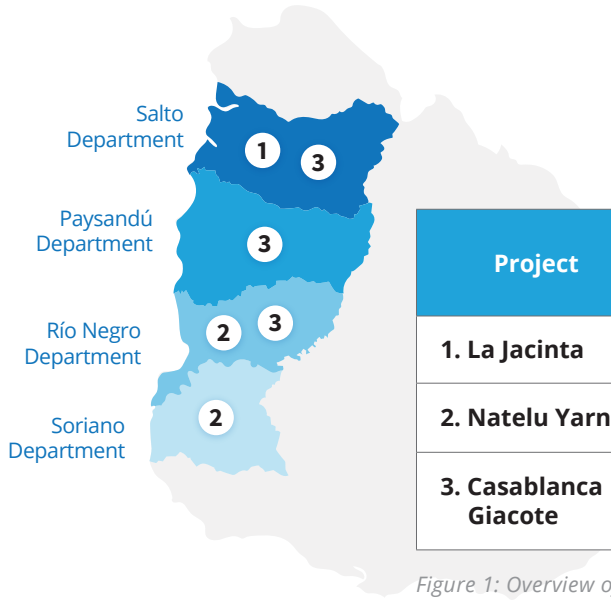
Historically, Uruguay's installed renewable energy capacity was heavily skewed towards hydroelectric power, leaving the energy system susceptible to climatic changes, particularly prolonged droughts. In times of diminished hydropower output, the domestic energy supply needed to be supplemented by more costly non-renewable resources (mainly fuel oil and gas oil) imported from Brazil and Argentina. In certain years, imported fuel swelled energy supply costs by an additional $500 million; costs that were passed on to end-users in the form of higher energy bills.

In a push to diversify the national energy matrix, the Government of Uruguay (GoU) launched a national strategy to increase the share of alternative renewable energy types in its installed supply, including solar photovoltaic (PV) systems. In 2013, through the state-owned utility company *Administración Nacional de Usinas y Transmisiones Eléctricas* (UTE), the GoU launched a 200 megawatt (MW) tender program[1], opening the energy generation sector to private ownership in order to expedite the creation of solar PV assets and satisfy the energy demands of about 150 thousand people[2].

IDB Invest, the private sector arm of the Inter-American Development Bank (IDB) Group, played a central role in arranging the construction phase financing and refinancing of a number of solar PV projects secured through the tender framework, including:

- **The La Jacinta project** – Salto Department, Uruguay, 64.8MW
- **The Natelu Yarnel project** – Río Negro and Soriano Departments, Uruguay, 19MW
- **The Casablanca Giacote project** – Paysandú, Río Negro and Salto Departments, Uruguay, 68.25MW

This case study will focus on how IDB applied blended finance through the deployment of concessional funds from the Canadian Climate Fund for the Private Sector in the Americas (C2F) to mitigate construction risk, attract institutional investors, and develop the commercial track record for the solar energy market in Uruguay. It will also examine the use of innovative fit-for-purpose financing instruments, specifically IDB Invest's A / B bond product, to more systematically unlock the capital held by large scale institutional investors.



Project	Installed capacity	Individuals impacted	Jobs created	GHG emissions avoided annually (in tCo2eq)
1. La Jacinta	64.8MW	~ 40,150	210	54,600
2. Natelu Yarnel	19MW	~ 12,740	460	19,500
3. Casablanca Giacote	68.25MW	~ 44,600	1253	74,000

Figure 1: Overview of the IDB Invest supported solar PV projects secured through UTE's 2013 solar tender

1 The case study will use the terminology "tender" to refer to UTE's 200MW solar development initiative for consistency with other documentation on the program. In a traditional tender process, bidders compete on tariff price, whereas in this case, the price was set by UTE as a feed-in tariff, with bidders competing and submitting offers on project cost. However, in line with typical tender procedures, the UTE tender was still openly marketed to potential vendors to ensure fair evaluation.

2 The figure of 150,000 people was determined using the US Energy Information Administration's average MW to MWh/year conversion rate of 1:2,146, and Uruguay's per capita electricity consumption rate during the period, equal to 2,810 kWh/year. (200MW x 2,146MWh) / 2,810kWh x 1000 = 150,000.

Design & Fundraising

At the time of IDB Invest's first investment in solar energy in Uruguay in the mid-2010s, few opportunities existed in the global solar market, including in Latin America (LatAm). With the exception of Chile – notable for being one of the most ideal locations for capturing solar energy in the world – project origination was scarce in the region[3]. IDB Invest's and C2F's first participations in commercial-scale solar PV projects were projects in Chile that served two mining companies and their transition to cleaner energy sources[4].

A paradigm shift in the region came in 2005 when the GoU transformed its energy sector. Recognizing the climatic vulnerability of the national grid, the GoU launched its 2005-2030 Energy Strategy. The Strategy prioritized both lower electricity costs for end-users and the diversification of energy, including targets to achieve 50% of primary energy from renewable sources by 2015.

Until the late 1990s, the Uruguayan energy sector was a vertically integrated state-run monopoly steered by UTE. Policy changes effectively split the sector into three distinct branches: generation, distribution, and transmission. The generation sector was made accessible to private ownership and investment, with UTE retaining a degree of oversight and authority. With the launch of the Energy Strategy, the national utility began awarding power purchase agreements (PPAs) to private sector independent power producers (IPPs) through an auction process.

In 2013, UTE launched a 200MW solar PV tender[5]. The tender had bidders compete on project cost with the PPA price structures stipulated by the national utility. UTE set an initial feed-in tariff rate (the per MW/h fee paid by off-taker UTE to the IPP) of $91.50 MW/h, determined by the long-term marginal cost of energy in Uruguay. At the time, the tariff was considered aggressive for IPPs. It was priced well below the tariffs from liquid fuel fired plants in Uruguay ($155/MWh) and was 30% lower than the global average of comparable solar facilities. While discounted solar PPAs had revenue implications for project sponsors, they were essential to transitioning solar PV projects into a competitive alternative source of energy in Uruguay and protected affordability for end-users.

The Uruguayan solar market attracted the attention of IDB Invest, which was looking for commercial-scale solar PV investment opportunities beyond Chile. Drawn by the cheap tariff regime established by UTE and by the prospect of creating a demonstration effect for renewable energy investment in the LatAm region, IDB Invest saw an opportunity to develop and commercialize the renewable energy sector using blended finance. With financial participation from C2F, IDB Invest supported the long-term project financing and structured A / B bond placements for operation phase refinancing of three solar projects selected in the 2013 tender: the La Jacinta project, the Natelu Yarnel project, and the Casablanca Giacote project. Figure 2 provides a timeline of these transactions, and other notable uses of the A / B bond instrument in the clean energy sector by IDB Invest.

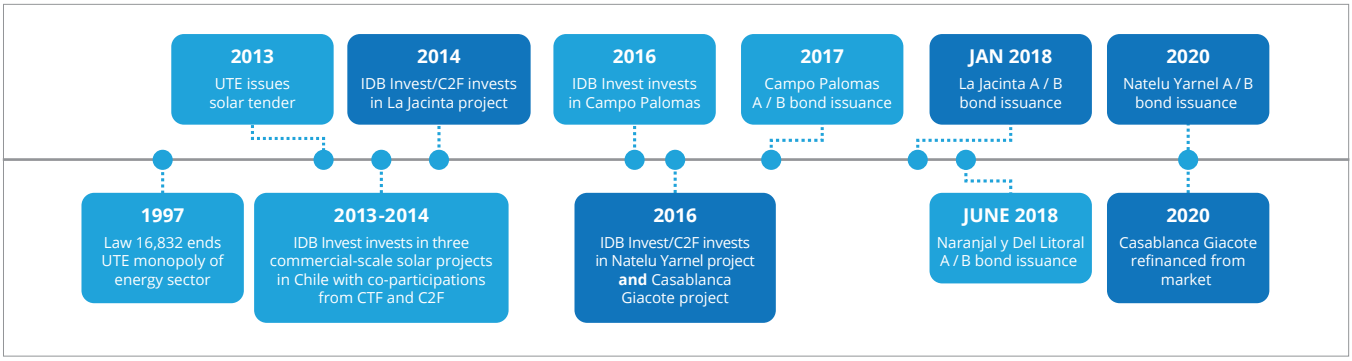


Figure 2. Timeline of Uruguay's solar transition and implementation of IDB Invest's A / B bond

3 Chile's Atacama Desert has the highest solar irradiance anywhere on Earth due to high altitudes, cloudless conditions, and a low ozone column.

4 IDB also approved a loan package with syndicated concessional financing from the Clean Technology Fund for the Crucero Photovoltaic Solar Energy Project, their second participation in the clean energy transition of the Chilean mining sector.

5 The high costs associated with solar PV technology prevented such projects from being included in the initial PPA auctions prior to 2013. PPAs released in the early stages of the Energy Strategy primarily focused on wind power. The price of solar generation gradually fell following economies of scale in the manufacturing of solar PV components, making utility scale projects more financially feasible. According to the Solar Energy Industries Association, the price of solar technology fell by 70% in the last decade.

LA JACINTA PROJECT

In 2014, renewable energy developer Fotovatio Renewable Ventures (FRV) was awarded a 30-year PPA by UTE to construct, operate and maintain the La Jacinta solar power plant, a utility scale solar farm in northwestern Uruguay. With a starting tariff of $97.96/MWh, it had the lowest price structure for solar PV in the region[6].

At the time, private sector investment in Uruguay's renewable energy sector was scarce – only 5% of energy generation in the country was under private ownership. Furthermore, in the mid-2010s the Uruguayan financial system was bank-dominated, whereby the majority of credit held by the private sector was provided by commercial banks. A strict regulatory environment, compounded by fiduciary considerations, meant these financial institutions had limited appetite for long-term assets like renewable energy projects.

La Jacinta Project
Salto Department, Uruguay

Recognizing an opportunity to crowd-in institutional investors to the sector, IDB Invest participated in the La Jacinta project via its A / B loan product. The A / B loan structure is a longstanding product used by IDB Invest and other multilateral development banks (MDBs) that extends the multilateral institution's preferred creditor status (specifically preferred access to foreign exchange) as the lender of record to participants in the syndication. Under the structure, IDB Invest acts as the lender, providing a portion of the total loan facility amount (A loan) for its own account. The balance (B loan) is funded by participating banks. Principal and interest are paid to IDB Invest and it distributes these flows on a pro rata basis. Figure 3 below summarizes the A / B loan design.

For the La Jacinta project, IDB Invest provided a 20-year, $40.85 million A loan and structured a $25 million concessional loan on behalf of the C2F. C2F is a co-financing fund, capitalized by the Government of Canada and managed by IDB Invest, that invests in climate-friendly private sector projects in the LatAm region. The function of the concessional financing tranche was two-fold. First, it reduced the overall cost of debt of the project, bringing the rate of return for the sponsor and senior lenders in line with historic expectations. Secondly, it improved the credit quality of the A / B loan package by reducing counterparty risk. Fundamentally, the C2F funding improved the borrower's revenue outlook despite an aggressive tariff environment to turn the project into a financeable opportunity.

DNB Bank, a Norwegian financial institution, participated as B lender. DNB had an active investing presence in the region and at the time of the La Jacinta project, specifically sought out investment opportunities in the renewable energy sector. Unlike domestic financial institutions, DNB had the appetite to take on construction risk exposure and to extend longer tenor debt.

Figure 3. A / B loan architecture

6 The difference between the La Jacinta starting tariff ($97.96/MWh) and the tariff stipulated under the 2013 UTE solar tender framework ($91.5/MWh) is indicative of contractual considerations that cause final PPA pricing to be higher than the tender rate set by UTE.

The La Jacinta solar farm commenced operations in 2015 and was acquired by Invenergy in 2018[7]. Invenergy used IDB Invest's A / B bond as take-out financing to refinance the initial construction phase debt. An A / B bond is an innovative finance instrument whereby IDB Invest enters into an A / B loan agreement with the project company for the repayment of existing credit facilities. IDB Invest provides a share of the refinancing amount for its own account (A loan). The B loan is funded via special purpose vehicle (SPV, bond issuer), which finances its participation by issuing a senior note to institutional investors in the capital market (B bond). All principal and interest payments on the A / B loan, pass through IDB Invest to the SPV for bond repayment. The syndication structure had already been successfully implemented in Uruguay in the refinancing of the Campo Palomas wind project in 2017. Figure 4 breaks down the A / B bond syndication structure. In the La Jacinta B bond, IDB Invest did not seek to refinance the C2F participation because the presence of the sizeable C2F tranche ensured an investment grade rating for the issuance; a critical element in attracting the interest of a large-scale institutional investor.

The A / B bond instrument provided several benefits;

i. It granted IDB Invest access to a more diverse investor set, namely institutional investors, that can provide long-term financing;

ii. it separated post-commissioning risk from construction phase financing by facilitating a secure exit for initial debt investors; and

iii. it opened up IDB Invest's balance sheet for additional development projects.

More broadly, raising funds via an A / B bond supported the Bank's mandate to broaden and deepen the underdeveloped local and international capital markets for infrastructure assets in LatAm, as well as diversify the sources of capital available to IPPs. For example, at the time of the La Jacinta A / B bond, the market capitalization of long-term debt and equity capital markets in Uruguay stood at just 0.4% of GDP, compared to 48% in LatAm and 86% in OECD countries.

DNB Markets Inc. acted as placement agent and targeted insurance companies as the ideal bondholder, given their need for long-term investment instruments to match long-term liabilities. DNB also believed that its participation in the transaction would create an appealing investment scenario that could draw in an investor type that to date, had little exposure in the sector and region.

The La Jacinta B bond, which marked the first cross-border solar project bond in LatAm, was privately placed with a life insurance company for $58.6 million[8].

Two factors were influential to attracting an institutional investor:

i. The product was rated investment grade (Baa3, Moody's)

ii. The IDB investment umbrella provided key benefits

In addition to the investment grade rating of the issuance, which was tenable given the continued presence of the C2F tranche and long tenor of the bond (25 years), the A / B bond structure enabled the B bond participant to benefit from IDB Invest's sectoral and country expertise, preferred creditor status and perceived lower-risk profile as a multilateral lender of record. A number of coverages and advantages are extended to the B bond participant under this "investment umbrella", including convertibility risk mitigation and exemption from withholding tax.

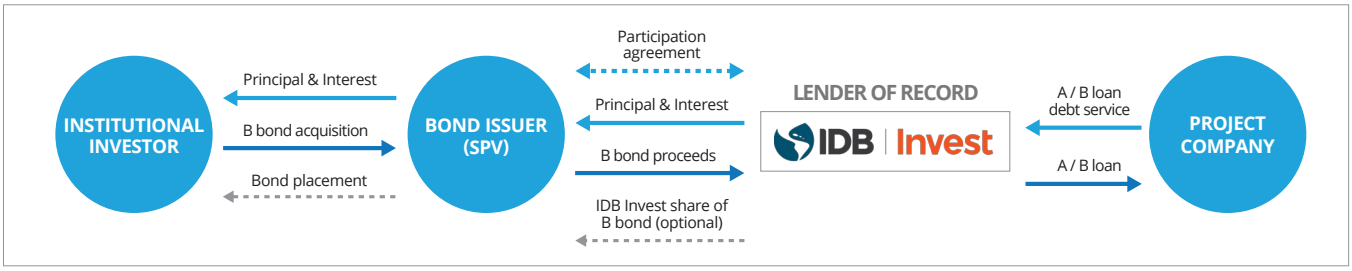


Figure 4. A / B loan structure

7 Invenergy Renewables LLC, a subsidiary of American energy developer Invenergy LLC, purchased the La Jacinta solar site from FRV in 2017.

8 The size of the La Jacinta B bond influenced the decision for placement in the private placement market. The large-scale investors targeted by IDB Invest are governed by liquidity requirements that typically prevent investment in public securities valued below $250 million.

NATELU YARNEL PROJECT

In 2013, UTE awarded two 30-year PPAs to Solaria Energía Generación Renovable S.L ("Solaria") for the construction and development of the Natelu Yarnel solar project[9]. The tariff rate was initially set at $86.75/MWh.

IDB Invest extended project financing to Solaria for the Natelu and Yarnel plants, marking its second backing of a utility-scale solar PV project in Uruguay. IDB Invest's debt facilities ($6.1 million for Natelu, $6.3 million for Yarnel) were matched with concessional co-financing from C2F. The C2F funding enhanced the commercial viability of the project, improved the borrower's credit profile, and enabled IDB Invest to extend the tenor of its loan, easing the debt service obligations of the sponsor. The project commenced operations in 2017.

Following the successful placement of the La Jacinta bond, IDB Invest offered the same refinancing solution to Solaria, with MetLife Investment Management customers acquiring the B bond for $27 million[10].

Unlike in the La Jacinta refinancing, the C2F concessional tranche was also refinanced. The successful issuance and replacement of concessional capital in the refinancing phase underscored a number of points:

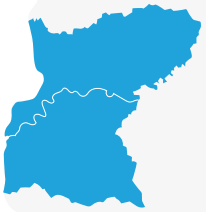
i. Renewable energy assets in Uruguay could attract sustained interest from institutional investors despite their limited prior exposure to the market.

ii. The sector was maturing – retaining investment grade status was achievable despite removing all subsidization from the financing structure.

CASABLANCA GIACOTE PROJECT

In 2013, UTE granted two 30-year PPAs to Giacote S.A.[11], and in 2014, four additional PPAs were awarded to a second SPV, Casablanca S.A. Both SPVs were jointly owned by solar PV developers Sky Solar Holdings and Lafemir[12]. The average combined tariff rate of the Casablanca Giacote solar fields was $86.5/MWh.

The Casablanca Giacote project was IDB Invest's third engagement in commercial scale solar PV in Uruguay. Project financing included investment from a second donor funded capital pool, the China Co-Financing Fund for Latin America and the Caribbean (the "China Fund"), in addition to a concessional tranche from C2F. The China Fund is a $2 billion fund capitalized by the Chinese Government and administered by IDB for both public sector and private sector projects in the LatAm region. The combination of the China Fund and C2F commitments was critical to the project's financial feasibility. The China Fund loan was an affordable alternative to commercial (i.e. bank) financing or increased subsidization through a larger C2F tranche. Similarly, C2F's involvement was right-sized to ensure the project's internal rate-of-return (IRR) remained above a feasible threshold to make it financeable and filled a capital gap ($10 million) that was unlikely to meet the ticket size requirements of institutional investors.



Natelu Yarnel Project
Río Negro and
Soriano Departments

Casablanca Giacote project
Paysandú, Río Negro
and Salto Departments

9 The project comprised two solar farm sites, the Natelu solar plant located in Young, Río Negro Department, and the Yarnel solar plant in Mercedes, Soriano Department.

10 https://www.solariaenergia.com/wp-content/uploads/b06097242dbe3e8370681603f7a95f69-1.pdf

11 Giacote S.A. oversaw the construction, operation and maintenance of two solar sites located in Western Uruguay, Arapey and Young (known as the Giacote plants).

12 Casablanca S.A. comprised the creation and operation of four solar plants located in Western Uruguay; Raditon, Dicano, Fenima and Petilcorán (known as the Casablanca plants). Only the Giacote solar plant PPAs were part of the 2013 UTE tender. The four Casablanca PPAs were bilaterally negotiated between the sponsors and UTE.

GENDER PERFORMANCE INCENTIVE

During the structuring period of the Casablanca Giacote transaction, IDB Invest recognized meager participation of women in the construction sector, a common characteristic of the industry exhibited both regionally and internationally. For example, in Uruguay, only about 3.5% of all construction jobs were held by women, who are instead disproportionately represented in lower income earning sectors, like retail and health.

Here, IDB Invest saw the chance to implement a performance-based incentive model that would demonstrate:

1. Female, unskilled labour can be recruited and converted into semi-skilled labour to grow and diversify the labour pool.
2. Aggressive gender targets in the construction phase of projects are feasible.
3. Local management systems are capable of identifying gender metrics at a granular level during the construction phase.
4. Gender-specific interventions can be incorporated into the legal architecture of transaction design.

These outcomes were intended to; (i) provide evidence to internal stakeholders of an innovative approach to integrating a gender lens into IDB Invest's own project financing processes; and (ii) promote this evidence base externally to motivate broader gender equality progress in the sector, both domestically and across LatAm.

IDB Invest and C2F devised a set of indicators and targets to quantify the programs' capacity to effect change on women's employment in a male-dominated, higher-skill sector. To encourage the project company's' uptake to achieve these targets, the Bank structured a performance-based incentive, whereby the project company (borrower) would receive an interest rate reduction on the C2F loan when the targets were met. Table 1. outlines the performance-based incentive structure.

Targets	Amount of C2F Interest Rate Adjustment
Target 1.1: Labour Force Participation • Women comprise at least 15% of the total number of workers at each site	**0.375%** permanent reduction if targets 1.1 and 1.2 are met*
Target 1.2: Labour hour condition • At minimum, 15% of total hours charged by the subcontractor are attributed to women • At minimum, 2/3 of the sum of the minimum hours attributed to women are in higher-skilled activities	
Target 2: Contractor condition • Both the engineering, procurement and construction (EPC) contract and contract between EPC contractor and subcontractor include provisions providing compensation for achievement of the employment targets	**0.375%** permanent reduction if target 2 is met*
**assessed at completion of construction*	

Table 1. Casablanca Giacote gender performance incentive framework

Blended finance incentivized the project company to work towards gender outcomes alongside project development. Secondly, the performance incentive embedded the gender element into the legal architecture of the transaction. While doing so adds complexity to the deal structuring process by including additional elements into contractual negotiations, it also amplifies the importance of the outcomes and intertwines them with the primary project activities.

IDB Invest witnessed significant traction in response to the performance-based incentive, with each site reaching the preestablished targets (outlined in Table 2). The borrower was awarded a C2F interest rate adjustment of 0.75%.

Project Site	**Target 1.1:** Labour force participation	**Target 1.2:** Percentage of hours worked by women in high-skilled activities
Dicano (Casablaca)	16.7%	68.2%
Fenima (Casablanca)	14.4%	68.9%
Arapey (Giacote)	18.3%	68.6%
Young (Giacote)	22.1%	112%
Petilcoran (Casablanca)	14.4%	69.4%

Table 2. Outcomes from the Casablanca Giacote gender performance incentive program

Structure & Governance

CAPITAL STRUCTURE

Overall, the presence of C2F concessional debt in the projects' construction phase financing had two functions:

i. It improved the credit quality of the borrowers

ii. It ensured the commercial feasibility of the projects

First, the below-market pricing of the C2F loans (priced 28%-46% below A loans or B bond coupons) helped enhance the credit profile of the borrowers by: (i) improving the sponsors' return on equity, bringing it in line with other energy projects in the region with comparable risk profiles; and (ii) ensuring the debt service coverage ratios (DSCR) of the underlying projects were sustainable and aligned with senior lender requirements[13]. Both outcomes reduced counterparty risk and therefore increased investor appetite.

Second, the long tenors of the C2F loans (ranging from 17 years to 25 years) also brought the DSCR to an acceptable level making the projects financeable. The extended time horizon of C2F's participation filled a critical financing gap in the market that would otherwise have required sourcing more costly debt from banks or greater equity participation from project sponsors, potentially threatening the financial viability of the project. Depressing the cost of capital provided balance sheet relief to the IPPs and made competing on UTE's aggressive tariff rate financially viable.

The construction phase financing packages for each project are outlined below, as well as the A / B bond structures for La Jacinta and Natelu Yarnel:

LA JACINTA FINANCING STRUCTURE

The total construction cost for the La Jacinta project was $102 million. IDB Invest invested alongside DNB through an A / B loan facility, with IDB Invest extending a 20-year A loan ($40.85 million) and DNB participating in a 17-year B loan ($15.85 million). C2F provided for the debt balance through a 20-year $25 million senior debt facility, *pari passu* with IDB Invest. In addition, FRV invested $20.3 million in equity to cover the remaining construction costs.

La Jacinta				
Source	**Amount** ($, millions)	**% of financing**	**Initial C2F Price Concessionality** (Discount)	**Tenor**
IDB A loan (senior)	40.85	40	–	20-year
IDB Invest B Loan (senior, DNB as sole participant)	15.85	16	–	17-year
C2F loan (senior)	25	25	46%	20-year
Sponsor Equity	20.3	20	–	–
Total Project Cost	**$102 M**			

Table 3. La Jacinta construction financing structure

13 Debt-service coverage ratio (DSCR) is a measure of a company's ability to pay its debt obligations at a point in time, taken as the ratio of net operating income to total debt service (payments). A ratio below 1 suggests that the borrower is not generating enough cash flow to cover its debt liabilities. Projects with similar risk profiles typically required a DSCR of at least 1.2 to attract senior lenders.

LA JACINTA A / B BOND FINANCING STRUCTURE

The La Jacinta A / B bond was structured and arranged by DNB Markets Inc. and IDB Invest, and was marketed by DNB Markets Inc. as sole placement agent. The 25-year private placement was Baa3 rated (Moody's, investment grade). Bond proceeds pass through to IDB Invest to fund a B loan participation in an A / B loan agreement with the project company, Jacinta Solar Farm S.R.L. Likewise, all principal and interest payments received by IDB Invest on the A / B loan are passed through to repay the bondholder.

It is important to note that bond prices in the private placement market are determined by finding an equilibrium price based on the quantity of the financial asset supplied and corresponding demand from investors. Issuers compare historical transactions to help estimate the bond price, accounting for differences in tenor and risk profiles. However, pricing the La Jacinta A / B bond faced unique challenges given the limited precedent of comparable transactions and limited market liquidity in the bond market. In such circumstances, investors have greater price-making influence[14].

The bondholder acquired the B bond for $58.6 million. As part of the financing package, IDB Invest provided a 25-year $7.2 million A loan and acquired approximately 5% of the B bond ($3.1 million).

> "...bond prices in the private placement market are determined by **finding an equilibrium price** based on the quantity of the financial asset supplied & corresponding demand from investors."

The C2F tranche had an outstanding balance of $24 million at the issuance but was not refinanced with bond proceeds as mentioned above. Instead, the C2F loan remained in the capital stack, *pari passu* with the IDB Invest A loan. At the same time, the tenor was extended to 22 years and the amortization schedule restructured to ensure the requisite cash flow threshold for investment grade rating was met[15]. In addition, the coupon was increased by 50bps to balance the rate of return to C2F and credit implications for the borrower, consistent with principles of minimum concessionality.

La Jacinta A / B Bond				
Source	**Amount** ($, millions)	**% of financing**	**Initial C2F Price Concessionality** (Discount)	**Tenor**
IDB Invest A loan	7.2	10	–	25-year
B bond	IDB – 3.1 Bondholder – 58.6	90	–	25-year
C2F loan (original)	23.98 remaining	-	amended to +50bps	amended to 22yr
Total Project Cost	**$68.9 M**			

Table 4. La Jacinta A / B bond structure

14 For example, the price of the A / B bond issued for the Campo Palomas project in 2017 (5.20% coupon), was used as a pricing benchmark for La Jacinta.

15 22 years was the upper boundary given the term of the C2F Fund.

NATELU YARNEL FINANCING STRUCTURE

IDB Invest extended two senior loans 1) a 15-year $6.06 million loan to the Natelu project company and 2) a 15-year $6.33 million loan to the Yarnel project company. These debt facilities were matched in value by two 17-year senior loans from C2F, *pari passu* with IDB Invest. The balance of the construction financing was sponsor equity ($0.202 million, Natelu and $0.211 million, Yarnel) and subordinated shareholder loans ($3.84 million, Natelu and $4.01 million, Yarnel).

Natelu				
Source	**Amount** ($, millions)	**% of financing**	**Initial C2F Price Concessionality** (Discount)	**Tenor**
IDB A loan (senior)	6.061	37.5	–	15-year
C2F loan (senior)	6.061	37.5	30%	17-year
Subordinated shareholder loan	3.838	23.8	–	–
Sponsor equity	0.202	1.3	–	–
Total Project Cost	**$16.162 M**			

Yarnel				
Source	**Amount** ($, millions)	**% of financing**	**Initial C2F Price Concessionality** (Discount)	**Tenor**
IDB A loan (senior)	6.331	37.5	–	15-year
C2F loan (senior)	6.331	37.5	30%	17-year
Subordinated shareholder loan	4.009	23.8	–	–
Sponsor equity	0.211	1.3	–	–
Total Project Cost	**$16.881 M**			

Table 5. Natelu Yarnel construction financing structure

NATELU YARNEL A / B BOND FINANCING STRUCTURE

The Natelu Yarnel A / B bond was a 20-year $27 million bond, rated BBB (S&P, investment grade), acquired in its entirety by MetLife Investment Management customers. The bond was issued at project completion by Natelu Yarnel Solar Uruguay Trust, a SPV incorporated in Delaware, with IDB Invest acting as sole arranger. IDB Invest entered into separate A / B loan agreements with each project company (Natelu S.A. and Yarnel S.A.), with bond proceeds passing through IDB Invest to fund B loan participations. IDB Invest funded the A loan participation for its own account, through two 20-year $1.5 million facilities (one for each project site). The A / B loans were used to refinance the IDB Invest long-term project A loans, the C2F concessional tranches and a portion of the subordinated shareholder loans ($5.6 million).

Natelu & Yarnel B bond				
Source	**Amount** ($, millions)	**% of financing**	**Presale Coupon**	**Tenor**
IDB Invest A loan (Natelu)	1.5	5	–	20-year
IDB Invest A loan (Yarnel)	1.5	5	–	20-year
MetLife Investment Management customers (B bond)	27	90	4.43% [16]	20-year
Total Project Cost	**$30 M**			

Table 6. Natelu Yarnel A / B bond structure

CASABLANCA GIACOTE FINANCING STRUCTURE

Project financing for the Casablanca Giacote project totalled $82.7 million, provided by IDB Invest ($48.5 million), The China Fund ($24.2 million) and C2F ($10 million). The China Fund and C2F commitments ranked *pari passu* to IDB Invest. Sponsor shareholder equity, totalling $38.5 million, comprised the remaining construction financing.

Casablanca & Giacote				
Source	**Amount** ($, millions)	**% of financing**	**Initial C2F Price Concessionality** (Discount)	**Tenor**
IDB Invest A loan (senior)	48.5	40	–	19-year
China Fund Loan (senior)	24.2	20	–	19-year
C2F Loan (senior)	10	8.2	28%	19-year
Sponsor equity	38.5	31.8	–	–
Total Project Cost	**$121.2 M**			

Table 7. Casablanca Giacote construction financing structure

16 https://www.spglobal.com/ratings/en/research/pdf-articles/201202-presale-natelu-yarnel-solar-uruguay-trust-11759584

Legal Structure & Governance

The legal structure of all three solar projects followed a traditional project finance approach, with the construction and operation carried out via SPVs owned by the respective project sponsors. See Table 8 below for more details.

IDB Invest played an active role in structuring and arranging the financing for all three projects and included supervision of its A and B loans, encompassing financial, legal, environmental and development impact elements tied to investment.

Project	Project Site SPV(s)	Ownership Structure	A / B Bond Issuer	Placement Agent
La Jacinta	**Jacinta Solar Farm S.R.L.** (Uruguay)	**CONSTRUCTION PHASE** **Joint ownership:** **Fotowatio Renewable Ventures** (Spain) *Subsidiary of Fotovatio SL* **Capital Riesgio Global** (Spain) *Investment vehicle of Santander Bank* **OPERATIONS PHASE** **Invenergy Renewables LLC** (US) *Subsidiary of Invenergy*	**Jacinta Solar Farm Finance Ltd. – SPV** (Cayman Islands)	**DNB Markets Inc.** (Norway) *subsidiary of DNB ASA*
Natelu Yarnel	**Natelu S.A.** (Uruguay; Natelu site) **Yarnel S.A.** (Uruguay; Yarnel site)	**Solaria Energía Generacíon Renovable S.L.** (Spain)	**Natelu Yarnel Solar Uruguay Trust – SPV** (Delaware)	–
Casablanca Giacote	**Giacote S.A.** (Uruguay; Arapey and Young Sites) **Casablanca S.A.** (Uruguay; Raditon, Dicano, Fenima, and Petilcorán sites)	**Joint Ownership:** **Sky Solar Holdings** (Hong Kong) **Lafemir** (Uruguay)	–	–

Table 8. Legal structures of the La Jacinta, Natelu Yarnel and Casablanca Giacote projects

Operations

ACTIVITY TO DATE

The La Jacinta, Natelu Yarnel, and Casablanca Giacote projects have added over 150MW of installed renewable energy capacity in Uruguay. The three solar plants cumulatively provide over 255GWh of electricity per annum to the national grid, significantly reducing Uruguay's reliance on more costly and higher emission non-renewable sources imported from surrounding countries. For example, the La Jacinta solar field alone will displace approximately 96 thousand MWh of thermal energy consumption per year. Together, the three solar projects have the generation capacity to satisfy the energy demands of approximately 97.5 thousand people.

> "...C2F supplied the **risk-bearing capital** that was critical for the initial entry of the institutional investor class into the Uruguayan solar market."

IMPACT TO DATE

IDB Invest and C2F sought to influence four fundamental impact outcomes through their support of the 2013 Uruguay solar tender:

i. Support Uruguay's economic development by improving the affordability of clean energy solutions

ii. Lower the carbon intensity and diversify the composition of the national energy matrix

iii. Generate private sector participation, particularly capital markets participation, in the renewable energy sector

iv. Directly improve the lives of local populations through job creation and reliable access to affordable electricity

First, IDB Invest and C2F support made the aggressive tariff structure set by UTE feasible, particularly for the early projects (La Jacinta). As Figure 5 shows, the concessional funding bridged the cost per MWh difference between the more expensive solar PV technology and the alternative thermal energy generation from fossil fuels (point T1 on chart). As solar PV components gradually became cheaper and more efficient over time and the solar market became more competitive, there was a reduced need for subsidization to ensure the financial feasibility of cheaper tariffs. For example, the initial tariff for the Casablanca Giacote project was $86.5 per MWh (2016), compared to $131.6 per MWh for energy from fossil fuel sources. Moreover, C2F supplied the risk-bearing capital that was critical for the initial entry of the institutional investor class

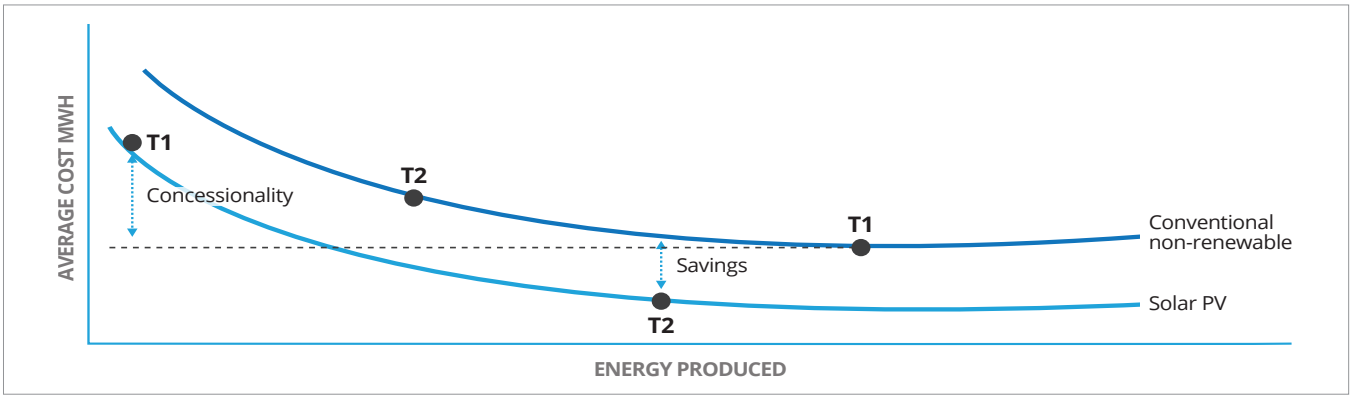


Figure 5. The progressive competitiveness of solar PV projects in Uruguay overtime

into the Uruguayan solar market by creating the capital market instruments that matched their institutional investor criteria. Over time, the risk perceptions of institutional investors towards the asset class shifted. As a result, commercial financing, or more specifically, institutional capital raised in the capital market, evolved into a more competitive option (T2). For example, the precedent set by the La Jacinta A / B bond influenced the complete commercial refinancing of the Natelu Yarnel project, affirming sufficient demand for solar refinancing assets in the capital market[17].

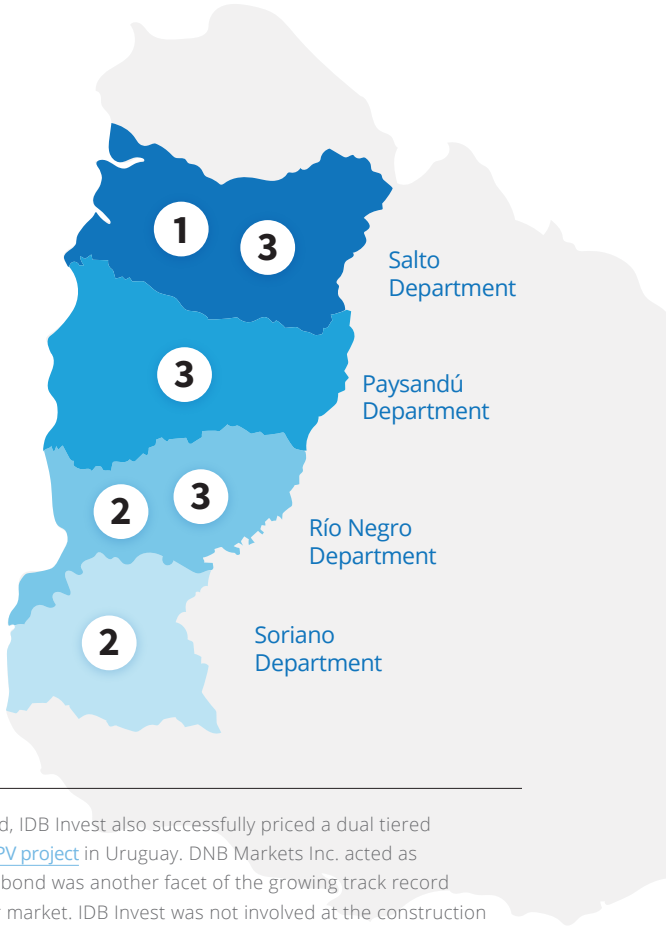
The three projects were also part of the shift to a greater national reliance on renewable energy sources for power. Table 9 below shows the annual impact on greenhouse gas emissions (GHG) of each project. Between 2005 and 2018, the share of non-renewable sources in Uruguay's energy supply fell from 58% to 37%, and electricity imports (primarily fossil fuel-based) declined to virtually zero. In 2019, renewable energy sources comprised 63% of the energy matrix, up from 37% in 2005, and accounted for 98% of electricity production. While solar PV remains the smallest proportion of the national energy matrix (1% of overall installed capacity), it demonstrates strong potential to meet growing electricity demand, particularly as the country's hydropower output is near capacity.

At the outset of the 2013 solar tender, private ownership of renewable energy assets in Uruguay stood at just 5%. However, by 2018, $4.5 billion of private sector investment flowed to the clean energy sector. Foreign investors were also playing a more prominent role. In 2018, they accounted for 75% of all capital invested in renewable energy. The three projects supported by IDB Invest and C2F contributed to this transition, producing an important demonstration effect of how to attract and structure institutional investor and cross-border investment in a novel renewable energy technology.

Finally, the projects provided job opportunities to the surrounding local communities during the construction and operation phases (Figure 6). In the case of the Casablanca Giacote project, the incorporation of the gender performance incentive contributed to 218 construction jobs for women, reflecting an average women labour participation rate of 17%. Women employees dedicated 37,578 hours to semi-skilled construction activities and over 20% of all labour hours in the project, with 85% of those hours dedicated to core civil works functions (i.e., mounting and assembly of solar modules).

Project	Amount GHG emissions avoided (per year, measured in tCo2eq)	Number of jobs created during construction
1. La Jacinta	54,600	210
2. Natelu Yarnel	19,500	460
3. Casablanca Giacote	74,000	1253

Figure 6. The emissions and employment impact of the IDB / C2F-supported 2013 solar tender projects



17 Six months after the La Jacinta A / B bond placement and prior to the Natelu Yarnel A / Bond, IDB Invest also successfully priced a dual tiered (senior / subordinated) A / B bond for the refinancing of the El Naranjal and Del Litoral solar PV project in Uruguay. DNB Markets Inc. acted as co-founder and placement agent. Acquired by a consortium of institutional investors, the B bond was another facet of the growing track record for institutional investor appetites for investment grade instruments in the Uruguayan solar market. IDB Invest was not involved at the construction phase of the project and there was no concessional participation from C2F throughout the project finance lifecycle.

Key Insights

BLENDED FINANCE CAN HELP BRIDGE THE GAP TO MARKET MATURITY:

Blended finance approaches can assist first movers in overcoming the myriad challenges presented by nascent markets and establish a track record of commercial viability. The solar PV market in Uruguay in the mid-2010s faced a series of obstacles to growth. The small Uruguayan economy existed only on the periphery of institutional investor investment mandates, leading to financing gaps, high perceived risk, and underdeveloped local capital markets. The soft capital from C2F was critical as it filled the gap and brought borrower credit and project risk profiles in line with institutional investor expectations. It also allowed for longer tenors on IDB Invest loans, ensuring project bankability, especially for La Jacinta. What proceeded from these early successes was a more developed market. Both the shift in the risk perceptions of institutional investors and the decline in solar PV equipment cost overtime reduced the share of concessional financing for the projects.

Gradually institutional investors replaced the subsidization model as the market became not only more competitive, but began to outcompete fossil fuel fired energy, making them increasingly financeable in the capital market. This is evident in the Natelu Yarnel and Casablanca Giacote projects.

It is important to note that Uruguay's strong performing economy, investment grade sovereign credit rating and the commitment of UTE to actively support such a transformation of the energy sector, were important aspects to securing cross-border investments and made it an exception in the region. The contribution of blended finance to the maturing of the Uruguayan solar sector can have a spillover effect to neighbouring countries and serve as a template to generate private sector appetite for renewable energy assets elsewhere in LatAm.

BLENDED FINANCE CAN BE AN EFFECTIVE TOOL TO INCENTIVIZE GENDER IMPACT:

The incorporation of a gender lens into blended finance transactions may still require finessing from gender proponents in order to achieve buy-in from developers and investors. The difficulty can be magnified in commercially oriented sectors, like infrastructure, where participation of women in semi- and high-skilled roles remains low and stakeholders desire a "business case" to justify the inclusion of additional activities. As evidenced in the Casablanca Giacote project, structuring concessional capital into results-based financing (RBF) schemes can effectively motivate action towards gender impact. Providing a monetary incentive to hire women kick-started the interest of the project sponsors to prioritize outcomes that are rarely undertaken in the construction sector. Documenting the performance-based incentive within the legal architecture of the transaction entrenched its importance alongside traditional activities and made it an important consideration for prospective investors. Concessional capital and RBF can play a vital role in narrowing the gender representation gap in male-dominated sectors, but they are not a complete answer. Additional interventions must also be thoughtfully devised to address the underlying issues that manifest in such inequalities.

BLENDED FINANCE STRUCTURES DEMONSTRATE THE BENEFITS THAT DEVELOPMENT BANKS CAN BRING TO PRIVATE INVESTORS:

Blended finance transactions allow an array of investor classes to pursue their own unique mandate within the same financial structure. The presence of certain investor types, such as multilateral organizations, also tends to yield benefits for co-investors and serve their own balance sheet or impact mandate. Multilateral development banks in particular play a specialized role, in part because of their innovative financial offerings; for example, IDB Invest's A / B bond instrument. IDB Invest's A / B bond offered several advantages that facilitated the expansion of institutional investors into Uruguay's solar PV market; it extended the Bank's investment umbrella to the B bond holders; created an instrument that appealed to the appropriate investor class (insurance companies) for long-term asset refinancing; and did so in a way that was familiar to institutional investors and easily replicable. MDBs also provide other intangible benefits to investors new to a sector, region or financing structure, like country expertise and a perceived lower-risk profile as multilaterals.

TAKING A PROGRAMMATIC APPROACH TO BLENDED FINANCE CAN PRODUCE GREATER SECTOR IMPACT THAN AD HOC INVESTING:

The launch of the 200MW solar tender by UTE presented IDB Invest with the opportunity to approach the development of the Uruguayan solar sector from a holistic, programmatic perspective. The application of blended finance at different project finance phases in the La Jacinta, Natelu Yarnel and Casablanca Giacote projects, as well as in other types of renewable energy projects in Uruguay (Campo Palomas), enabled IDB Invest to build a track record of successful solar development. This was despite there being limited prior implementation of blended finance in the country, both in the area of renewable energy asset creation and across sectors more generally. A string of successful projects in succession helped attract institutional investor participation and consistently grow market exposure. Replication of proven models for comparable transactions will play a key role in scaling markets.

FIT-FOR-PURPOSE FINANCING CAN TAP INTO NEW INVESTOR SETS:

The dominance of the financial sector in Uruguay by commercial banks restricted the types of credit available to renewable energy asset developers and resulted in a scarcity of long-term capital. IDB Invest's A / B bond instrument structured the projects' refinancing to reflect the types of assets sought by institutional investors, specifically insurance companies. Stretching the debt over a long time horizon matched the investor's desire for long-term assets with the developer's revenue stream and debt service capacity. The presence of concessional financing made the bond's tenor extension financially feasible. Creating investable assets like the A / B bond, that can entice new investor classes place MDBs in an essential role as deal originators and market makers in blended finance. As domestic pension funds in Uruguay and across LatAm become more prominent, the A / B bond track record will likely serve as a demonstration effect for increased participation in green energy transactions in the region.

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