Webinar: Opportunities for Fintech to Scale up Finance for Clean Energy

Paris, 11th June 2020
Agenda

- Introduction
- The state of digitisation of green bonds and its potentials to unlock finance for energy efficiency projects
- How does the technology work?
- Lessons learnt from Indonesia’s digital retail green bond issuance
- Q&A (30 mins)
- Wrap up
Welcome to the webinar

Emi Bertoli, IEA

Cecilia Tam, OECD
Speakers

• Marianne Haahr, Executive Director of Green Digital Finance Alliance

• Jacob Ninan, Kottackal Business Solutions

• Dwi Irianti Hadiningdyah, Director of Islamic Financing, Ministry of Finance, Indonesia
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Don’t close the internet window,
as other questions will follow
Webinar - Opportunities for Fintech to Scale up Clean Energy Finance

Cecilia Tam, Team Leader, OECD Environment Directorate
Leverage its **institutional capacity, expertise** on climate, investment, energy, long-term financing and development finance

**Whole-of-government approach** across various policy communities

**Convening power** to bring together the Finance, Environment and Energy Ministries as well as Networks of institutional investors

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[https://www.oecd.org/cgfi/](https://www.oecd.org/cgfi/)
Integrated approach to unlocking finance and investment

Enhanced capacity via targeted policy support

Holistic analysis of policies

Robust clean energy finance and investment environment

Highlighting best practices

Investor dialogues to accelerate investment

https://www.oecd.org/environment/cc/cefim/
OECD and Digitalisation

Blockchain technology and low-carbon infrastructure

Financing Infrastructure
Unlock new and mobilise existing sources of financing

Visibility & Alignment
Visibility of climate action and alignment of stakeholders

Awareness & Access
Transactive infrastructure of new market models

INNOVATE
Unleash innovation in technologies, institutions and business models
**Fintech and Clean Energy Finance**

**Integrated Energy System (Emerging)**
- Co-generation
- Renewable energy resources
- Distributed energy resources
- Smart energy system control
- Surplus heat
- EV

**Financial Intermediaries (Today)**
- Trusted, centralised intermediaries
- Batch clearing and settlement
- Higher fees and costly infrastructure

Source: IEA

**Financial Protocol (Emerging)**
- No (or fewer) intermediaries
- Near real-time processing
- Lower fees and reduced infrastructure costs

Source: Citi Research

**Financial Network (Distributed Ledgers)**
- Clearing House (Centralized Ledger)

Source: CEFIM
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Fintech to Innovate Energy Efficiency Finance
## Capabilities FinTech brings to EE finance

### Challenges
- Size of EE assets and projects and its intangible nature
- High perceived risk pushes up return requirements. Low confidence
- Less standardized financial products for EE

### Data
- Asset level data
- Real-time verified data

### Aggregation
- Aggregate investors
- Aggregate and package EE assets and projects
- Package EE with other assets with different perceived risk profiles

### Behaviours
- Reward and gamify EE behaviors
- Integrate EE into ESG
- Automated tracking of EE behaviors of SMEs

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- **Size of EE assets and projects and its intangible nature**
- **High perceived risk pushes up return requirements. Low confidence**
- **Less standardized financial products for EE**

- **Aggregate investors**
- **Aggregate and package EE assets and projects**
- **Package EE with other assets with different perceived risk profiles**

- **Reward and gamify EE behaviors**
- **Integrate EE into ESG**
- **Automated tracking of EE behaviors of SMEs**
Innovating green capital market instruments

EE in e-asset management, robo-advisory and crowd finance

Building energy efficiency into finance algorithms

Additional avenues for EE financing via digital innovation
Aggregation of Investors - Green robo advisors, automated portfolio management, crowdfunding
Green capital market instruments

1) Digitize green bonds

2) Innovate digital green bonds Security Token Offerings for EE

3) Converting EE to new digital financing vehicles

Neighbourhood level: Saved energy is traded, used to pay storage (EV charging station)

Incumbent level: Green tagging and asset performance forecasting

<table>
<thead>
<tr>
<th>SUSTAINABLE BOND</th>
<th>STRUCTURED GREEN BOND</th>
</tr>
</thead>
<tbody>
<tr>
<td>VALUE: $110 MILLION</td>
<td>EUR 3bn MILLION</td>
</tr>
<tr>
<td>ORGANISATION: World Bank and CBA</td>
<td>BBVA</td>
</tr>
<tr>
<td>PROCESSES: Structuring and Issuance</td>
<td>Issuance, Registration</td>
</tr>
<tr>
<td>BLOCKCHAIN: Private Permissioned version of Ethereum blockchain</td>
<td>Hyperledger Fabric (aid process) Ethereum testnet</td>
</tr>
</tbody>
</table>

380 Token offerings 2019

4.1 bn USD raised

TOP15: 5 FinTech, 1 part of energy market
Integration of EE in financial decision making algorithms towards new green asset classes

Green in automated credit scoring

- Get EE into accounting and business model of SMEs
- Advisory of EE in production
- Digitization of EE and other green metrics
- Automated analysis of green data footprints
- “Data for benefit SWAPS”
- Building EE into new asset classes of green SMEs
Behaviours: New Incentives

New incentives:
- Networked business models
- Social incentives
- Gamification
- Financial/material incentives
Thank You!

www.GreenDigitalFinanceAlliance.org
Webinar: Opportunities for Fintech to Scale up Finance for Clean Energy

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Digitalisation Webinar - Opportunities for FinTech to Scale up Finance for Clean Energy

Jacob Ninan
Co-Founder, Kottackal
director@kottackal.org
Challenges: Financing Clean Energy Projects

- Shortage of Bankable Projects
- Generic funding products
- Opaque, Expensive Process
Technical Architecture : 3 Pillars

DIGITIZATION

Automation of Fund Management, Returns / Outcome tracking

DATA & INTELLIGENCE

Data Immutability, Security, Privacy and Intelligence for Humans and Machines

TRUST

Privacy, Audit trial, Milestone based funding, Transparency
Would you like to procure your marine spare parts in time for the best price and quality?

Tools

- Blockchain
- IoT
- Smart Infrastructure
Phases: Financing Clean Energy Projects

- Pre-Development
  - Green Grants, Green Loans

- Project Funding
  - Green Bonds

- Project Operational
  - Returns, Governance, Impact Reports
Would you like to procure your marine spare parts in time for the best price and quality?

UC1 – Pre-Development funding
Would you like to procure your marine spare parts in time for the best price and quality?

UC2 – Green Bonds Funding

<table>
<thead>
<tr>
<th>ISIN</th>
<th>Bond Name</th>
<th>Documents</th>
<th>Dates</th>
<th>Coupon Value</th>
<th>Price (in ETH)</th>
<th>Bonds Available</th>
<th>Bank</th>
</tr>
</thead>
</table>
| TH413056609 | ICO Green Bond  | View      | Issue: Sun Nov 12 2017  
Publish: Tue Nov 14 2017  
Decline: Thu Nov 16 2017  
Mature: Sun Nov 15 2020 | 4.7          | 3              | 100             | ING                 |
| US411628790 | Argoys GB       | View      | Issue: Fri Jan 13 2017 
Publish: Sun Jan 15 2017 
Decline: Thu Jan 16 2020 | 5.6          | 5              | 400             | Dividend Solar        |
| JP626545812 | JCR Green Bond  | View      | Issue: Thu Jun 14 2018  
Publish: Wed Jun 20 2018  
Decline: Tue Jun 21 2022 | 2.5          | 6              | 300             | Sumitomo Mitsui Banking |
| AU284233777 | ORs green bond  | View      | Issue: Mon Apr 17 2017  
Publish: Wed Apr 19 2017  
Decline: Mon Apr 20 2020 | 0.58         | 2              | 600             | SID Bank             |
| AU87058338  | AU Solar Bond   | View      | Issue: Tue Sep 18 2018  
Publish: Thu Sep 20 2018  
Decline: Thu Sep 22 2018 | 7.3          | 1              | 700             | Bank of Guizhou       |
Would you like to procure your marine spare parts in time for the best price and quality?

UC3 – Project Discovery and Matching
Would you like to procure your marine spare parts in time for the best price and quality?

UC4 – IoT Data (From Energy Project) write to platform in near real time
Learnings: Financing Clean Energy Projects

Need for Project Finance customization

Simple and Transparent process

Blended Finance for preparing Bankable projects
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SAVING SUKUK - ST006

Debut to Green Sukuk Retail Market Using Online Platform

Dwi Irianti Hadiningdyah
Director of Islamic Financing
Directorate General of Budget Financing and Risk Management
Ministry of Finance Republic of Indonesia
WHY SELLING ONLINE?

“Retail Government Securities distribution platform needs to adapt to the future Indonesia Economic Digital Trends”

Digital buyer penetration in Indonesia from 2017 to 2024

E-commerce penetration in Indonesia is expected to grow to 77.2 percent of population in 2024.

Retail e-commerce Penetration by Country (2018)

The potential for growth in online retail far exceeds anything offline retail can generate.

Mobile e-commerce (Forbes, 2019)

76% of all internet users in Indonesia make purchases from their phones, the highest rate of mobile e-commerce of any country in the world.

Demographic bonus in the era of digital economy facilitates government’s roadmap of online retail government securities issuances

Source: UN, Forbes, Katadata, Central Bureau of Statistics (BPS)
elektronik - Surat Berharga Negara
(Electronic - Government Securities)

Types of SBN Retail:

- Syariah – Non Tradable
  Since 2016

- Syariah – Tradable
  Since 2009

- Conventional – Non Tradable
  Since 2014

- Conventional – Tradable
  Since 2006

“MOF Indonesia supported its millennial members in developing this online system without involving any external IT providers”

Advantages

1. 24h Access
   Easy access anywhere and anytime during the offer period

2. User Friendly
   Order can be done via gadget

3. Convenience
   Investors do not need to come to Distribution Partners to book*

4. Fairness
   First Come First Serve
1. Investor has to register via Agents’ Electronic System;
2. Create SID (Single Investor Identification) and Securities Account (if needed).
3. Investor orders via Agents’ Electronic System having fully understand all terms and conditions as stipulated in the Memorandum of Information
4. Investor receives billing code via Agents’ Electronic System or email;
5. This code (billing code) is later to be used for payment
6. Based on billing code, investor pays in certain Banks*) via teller, ATM, internet banking, mobile banking, under specified time limit;
7. Investor receives transaction number & notification of completed order via Agents’ electronic system and registered email.

HOW to BUY

REGISTRATION

CONFIRMATION

PAYMENT

ORDER

8. Statement of Account as the confirmation of the ownership of the retail bonds shall be sent to investor’s registered email via Agents’ Electronic System

Retail Sukuk Development

“Issuance of Retail Sukuk continues to increase and supports financial inclusion policies in Indonesia.”

- Retail Sukuk issued since 2009.
- Support the development of Islamic Financial Markets and financial inclusion
- Encourage the transformation of society towards investment-oriented society.
- Investors can buy in small units of purchase.
- ST002 is the 1st retail sukuk that was issued online in 2018

**Retail Sukuk**

12 Series
Retail Sukuk
Issued from 2009-2020
Total Investor 302,342 Investors
Triliun IDR177,94 Total issuance Retail Sukuk 2009-2020

**Sukuk Negara Tabungan**

6 Series
Savings Sukuk
Issued from 2016 - 2019
Total Investor 72,039 Investors
Triliun IDR16,71 Total issuance 2016-2019

Investors come from various professions:

- Entrepreneur and Private Employees: 55%
- Government Official: 12%
- Housewife: 10%
- Student and Retired: 12%
- Others: 11%

Individual investors come from 34 Provinces

Entrepreneur and Private Employees
Government Official
Housewife
Student and Retired
Others

(case study Sukuk Tabungan ST-006)
WHY GREEN SUKUK RETAIL

**Sustainable investors base**
Retail investors are less sensitive to economic cycles

**Engagement through environment issues**
Green is currently a trend

**Increase level of awareness, especially millennials, on climate change/environment issues**
CASE STUDY: Green Sukuk Retail 2019

- Terms & Conditions:

<table>
<thead>
<tr>
<th>Term</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenor</td>
<td>2 years</td>
</tr>
<tr>
<td>Type</td>
<td>Non-tradable</td>
</tr>
<tr>
<td>Min order size</td>
<td>IDR 1 million (USD72)</td>
</tr>
<tr>
<td>Max order size</td>
<td>IDR 3 billion (USD216,000)</td>
</tr>
<tr>
<td>Nominal per unit</td>
<td>IDR 1 million (USD72)</td>
</tr>
</tbody>
</table>

- ST006 has been issued to finance and refinance eligible green sector in accordance with the ROI green bond/sukuk framework.

- On 28 November 2019, Republic of Indonesia (ROI) issued the 1st Retail Green Sukuk in the world, ST-006.
- ST-006 has a 2-year tenor and a floor return of 6.75% p.a., with minimum order size of IDR1 million and maximum of IDR3 billion. It is non-tradable.
- It gained an overwhelming response from investors with total issuance of IDR1.46 trillion. ST-006 attracted interest from 7,735 individual investors across all province in Indonesia.

The Online System managed to reach all 34 Provinces in Indonesia.

New Investors were dominated by millennials (56.05%).
**Impact Report of Green Sukuk Issuance**
(available at [https://www.djprr.kemenkeu.go.id/page/load/2357](https://www.djprr.kemenkeu.go.id/page/load/2357))

**Energy Efficiency Projects**
Installation of smart street lighting integrated with solar power plant.

Installation of smart street lightings integrated with solar power plant and is combined with retrofitting the existing bulbs with LEDs.

**Renewable Energy**
**Mini-hydro Power Plant Project**
The projects aim at providing electrification in off-grid areas, especially in remote areas and small islands utilizing locally available resources.


**Resilience to Climate Change**
**Installation of Smart Public Street Lighting**
Smart street lighting, also referred to as adaptive street lighting, dims when no activity is detected, but brightens when movement is detected.

Key Takeaways
*Positive things from the new system*

1. The first ever Green Retail Sukuk issuance using SID (single investor identification) as a unique code.

2. Online system produces more categories from Distribution Agents, not only Bank and Securities Companies, but also **Fintech Companies**.

3. With the online system, order book from eastern part of Indonesia increased significantly.

4. Online system created more new investors which were dominated by young generation (25-40 years of age). The ration increased significantly (from 13% by offline to more than 50% by online).

5. The green sukuk retail issuance manages millennial not only for profit, but also concern about environment. Also, it helps to attracts green communities, i.e TRASH HERO.
Terima Kasih
Q&A Session

Moderated by Vida Rozite and Emi Bertoli (IEA)
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Conclusions and wrap up

- Cecilia Tam, OECD
- Emi Bertoli, IEA