Financing support to the Energy Transition - Value add in the Supply Chain

Energy & Digital World (EDW) 2024 – 15:45-16:30

Frank Tsai, VP, Senior Customer Finance Advisory, Southeast Asia and NZ

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About Hitachi Energy

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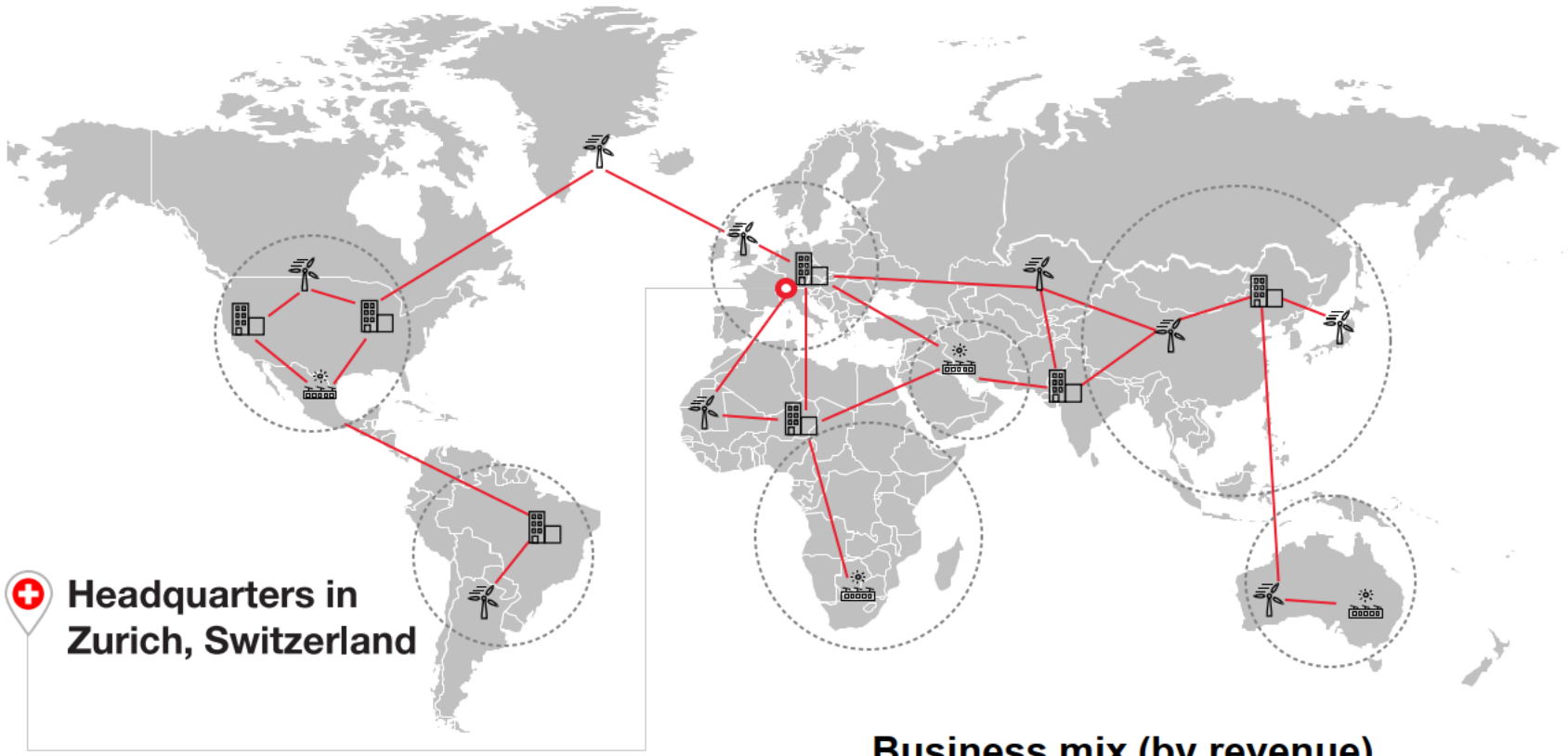

40,000 employees

90+
countries with 200 offices

~250
years' heritage combined

5,500
sales employees & field engineers

2,000
engineers & scientists in R&D

Four Business Units

Grid Automation	**High Voltage Products**
Grid Integration	**Transformers**

Business mix (by revenue)

Customers

- Transport & Infrastructure
- Industry
- Utilities

Offering

- Services
- Software & Automation
- Systems
- Products

Geographies

- Asia, Middle East & Africa
- Americas
- Europe

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Introduction

Hitachi Energy Customer Finance Advisory

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Customer Finance Advisory (CFA) - Who we are

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We are a Global Team of 11 advisors

We have on the ground presence in Europe, AMEA and the Americas

We are a Corporate Function / Internal Competence Center covering all 4 Business Units

- Grid Automation
- Grid Integration incl. HVDC
- High Voltage Products
- Transformers

We are part of the Treasury and Export & Trade Finance department in the Hitachi Energy Finance Organization

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We are advisors – liaison partners – catalysts – enablers …

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- We engage in the financing dialogue between the customer and the Hitachi Energy sale & capture team
- We advise, propose and facilitate

✓ short-term payment solutions – **Supplier credi**

✓ long-term debt financing solutions – **Buyer credits**

✓ **Risk mitigation** solutions, pre- & post shipment risk cover to Hitachi Energy

- We are **access point** to commercial banks or other specialized financial institutions as well as Export Credit Agencies/Private Risk Insurers
- We also provide general financial advisory, share market understanding and engage in or conduct Hitachi Energy internal training

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Customer Finance Advisory in a nutshell

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- Hitachi Energy
  - is a world leading global supplier of power infrastructure technology into the Transmission & Distribution market(s)
  - design, manufacture and sell products and projects as well as provide relevant service arrangements
- In a Supplier facilitated financing solution
  - the arrangement is offered by 3rd party commercial and/or export banks and other financing institutions
  - the value-add is most likely based on the (i) export content (manufacturing footprint), or (ii) commercial contract (payment) term
  - the CFA role is to provide advice and liaise with all parties involved under the mandate from Hitachi Energy
- Projects and Customers (borrowers) need to be bankable and fully acceptable to financiers. There needs to be information available and full transparency on all project and corporate financial status as well as ESG
- Additionally, CFA provide general financial advisory, if, when and where relevant e.g. for the purpose of risk mitigation, or embedding financing elements into alternative business model offerings

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Background

Current market

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Challenges facing the grid

The conversations that we have every day with customers

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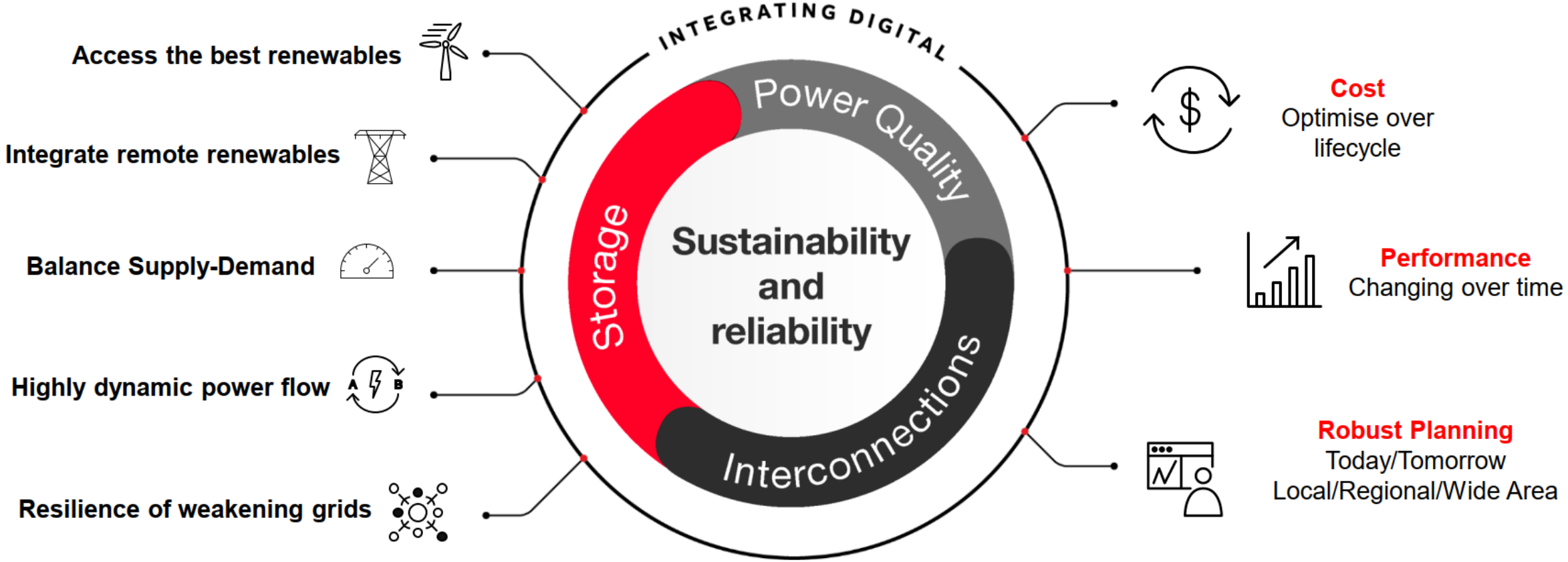

Strongly interconnected grids will better manage the energy system transformation

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Introduction of New Technologies

Aging infrastructure, new interconnections, increased load, the shift from synchronous to non-synchronous generation

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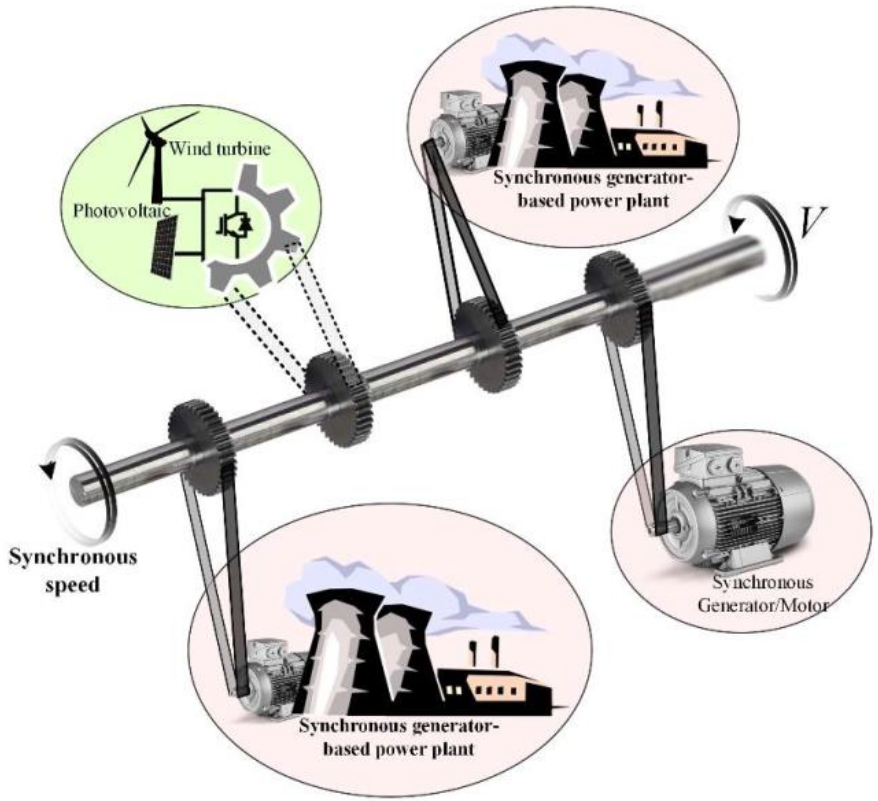
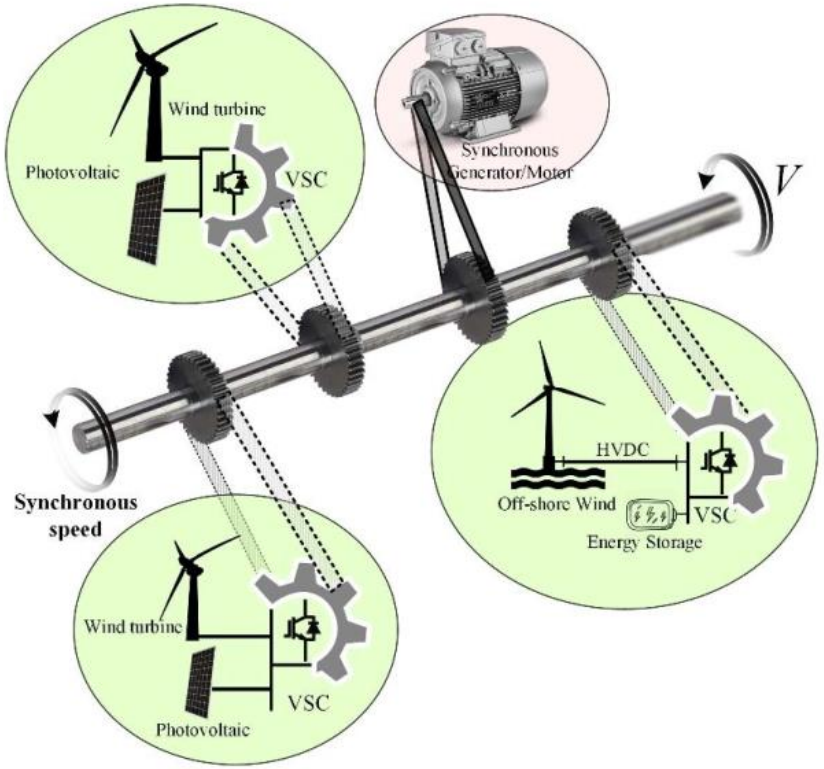
Traditional Grid



The New Grid



The changing power landscape entails the need to introduce new technologies.

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ASEAN Power Grids: Massive CAPEX

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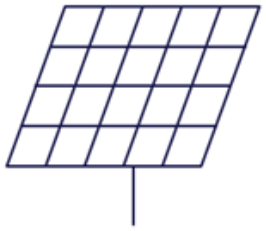
Net Present Cost (NPC) for decarbonizing a fully interconnected ASEAN region models = USD 6.4 trillion

The regional approach will require

3.75 mil km
of additional electrical infrastructure

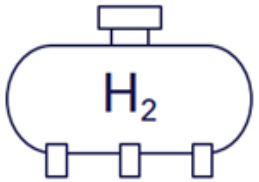
The regional approach will reduce the need of



600 GW
less solar capacity to be installed

13%
footprint reduction

1.2 TWh
electricity storage



16 TWh
hydrogen storage

Source: “ASEAN Interconnector Study” by DNV

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Energy Transition Massive CAPEX

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Delivering the JETP goals requires a major pivot in investments away from fossil fuels towards a rapid scaling-up of renewable capacity, storage and grids

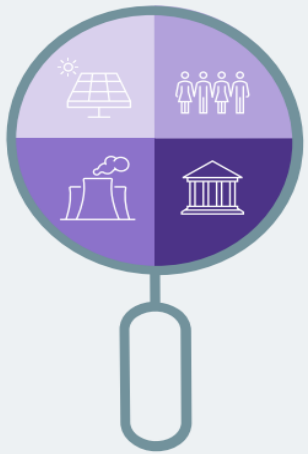
We estimate almost **USD 1 trillion** of investment is required to 2050 in renewable technologies for the JETP scenario, presenting major opportunities for public and private investors to participate in driving clean energy growth. Around **USD 4.3 billion** of public subsidies would help catalyse a cost competitive roll-out of new solar PV and wind this decade.

Limiting the use of existing and new coal plants is fundamental to accelerating the transition

Our analysis suggests coal plant owners may face potential losses from reduced use of their assets in the order of **USD 20-60 billion** to meet the JETP scenario targets. Sharing this burden between owners, the Government and IPG members, is critical for success. An incrementally rising carbon tax is one instrument that could raise revenues to compensate losses.

Phasing-out coal will deliver enormous health benefits to Indonesians

We find limiting coal use to align with the JETP scenario can avoid **240,000 premature deaths** up to 2050 in Indonesia and neighbouring countries, delivering economic benefits of **USD 150 billion**. These alone well exceed both coal plant owner potential losses and the volume of funding committed as part of the JETP.



Management of a just transition for workers requires early planning to mobilise financial and institutional capacities today

Our analysis for the JETP scenario indicates a potential need to offer support packages for reskilling, relocation and to cover temporary income losses, totalling at least in the order of **USD 2.4 billion** for employees in the coal sector that are disadvantaged by the energy transition. And further measures to boost economic activity in coal regions and support the social transition, beyond the scope of our analysis, will add to overall finance needs.

To capture the opportunities presented by the energy transition it must be accompanied by enhanced institutional capacity

To effectively manage the change, new and enhanced institutions at both national and sub-national levels need to cover activities such as system planning, licencing, policy implementation as well as key aspects to enshrine justice throughout the process, including overarching governance structures, labour and social protection, and environmental safeguards.

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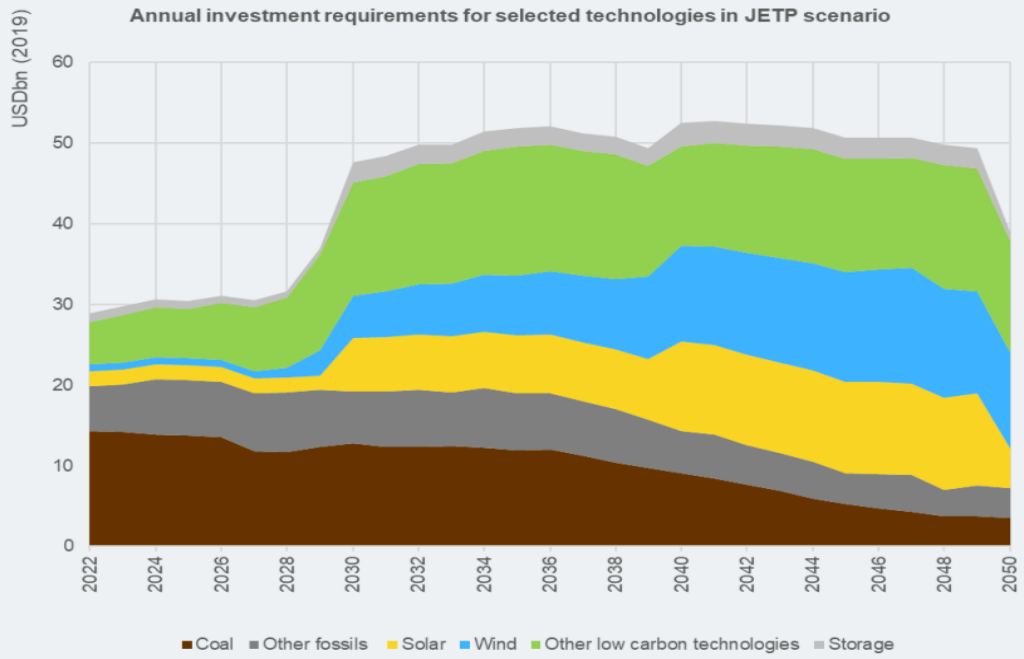
Energy Transition Massive CAPEX

Cumulative investments to supply electricity under the JETP scenario reach USD 1.3 trillion over the period to 2050 with annual finance needs in the order of USD 50 billion from the 2030s

- Major investments are needed to expand and operate generation capacity in Indonesia in the coming decades to meet rising electricity demand.
- Total annual investments in the JETP scenario are in the order of **USD 30bn** this decade, rising to around **USD 50bn** by the early 2030s.
- Investments in renewables and other low carbon technologies remain somewhat limited this decade, ramping up significantly from the start of the 2030s and accounting for **USD 0.9tn** of the total USD 1.3 trillion in investments estimated over the period to 2050.
- Coal and other fossil fuels continue to dominate investments in new capacity and generation in the 2020s, declining gradually thereafter.
- Fossil fuels account for around **USD 0.4tn** of investment needs to 2050, the vast majority of which are fuel costs.



Source: NewClimate, IESR.

Notes: 'Other low carbon technologies' include geothermal, hydro, nuclear and biomass technologies. Estimated investment requirements cover capital and operational expenditures, including spending on fuel.

Background – market megatrends

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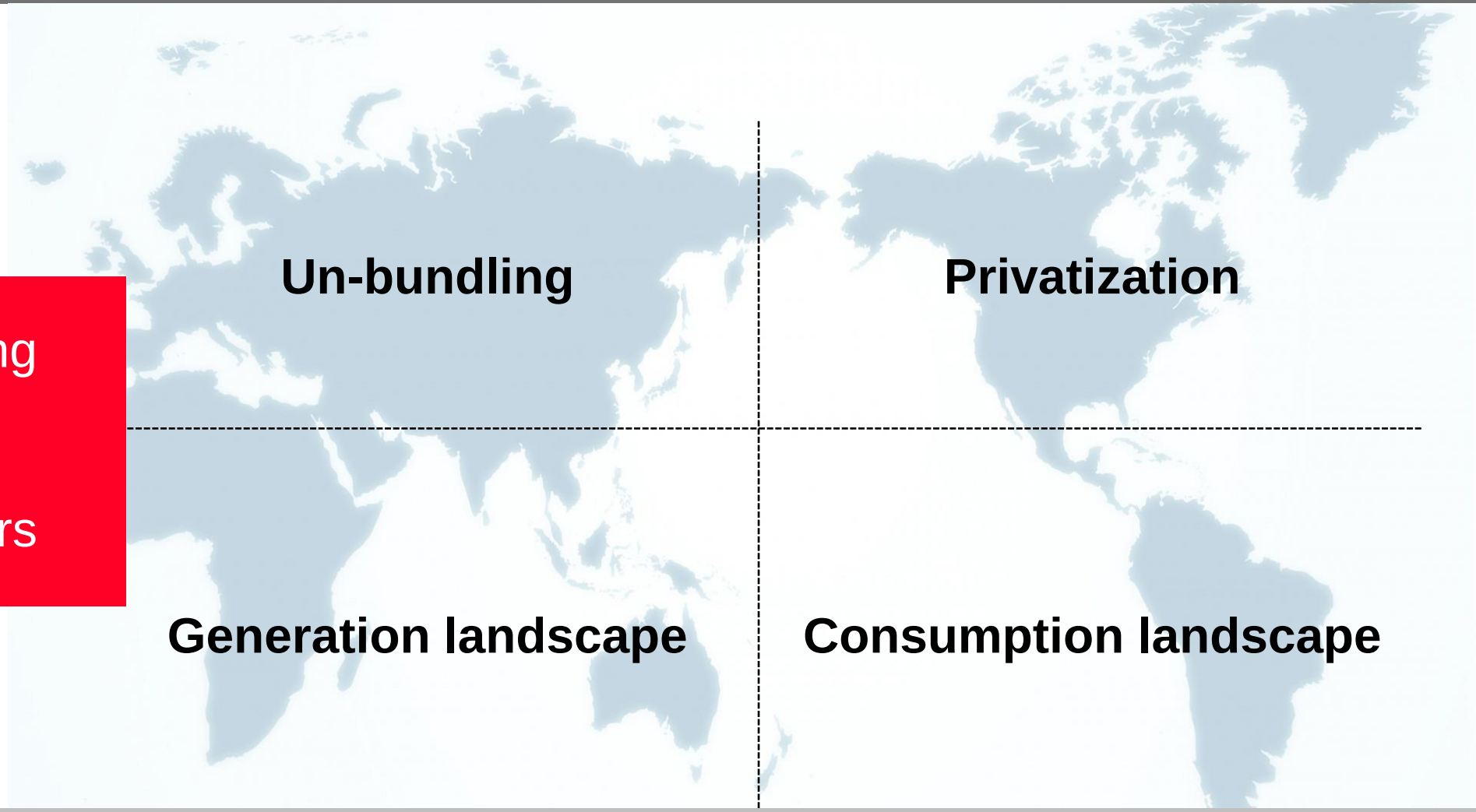
Megatrends driving investments in Transmission & Distribution sectors



Collectively calling for challenging investment and financing needs in the T&D sectors

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Background – T&D Investments and financing needs

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Megatrends, investment needs, and a new playing field alters procurement and financing patterns

- New players entering the power sector
- Old players in new guises resulting from un-bundling and privatization
- Procurement and supply-chain driven in new ways
- New business models are envisaged, or in various stages of under review or being launched
- From shift in Roles & Responsibilities, follows a push for a shift in the Risks & Rewards distribution (or vice versa)

➢ All of the above, in various ways, impact on financing needs, patterns and desired structures

The Pathway to a Green Electrical Future

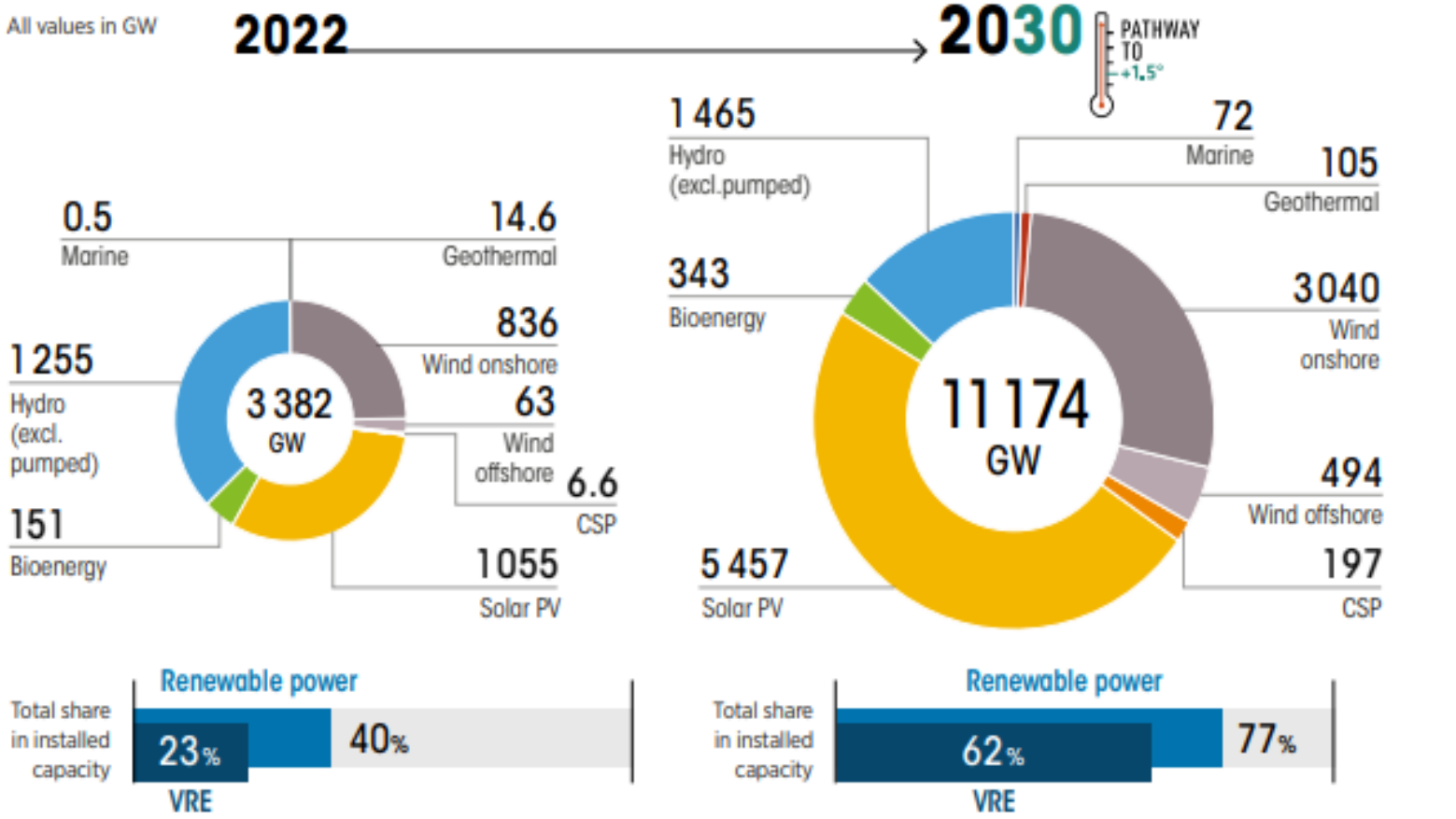
In 2023 acceleration in new global renewable capacity additions

- 473 GW added - a jump of 54% over 2022!

New renewable power capacity additions in 2024 + 2025 to grow sufficiently over 2023 levels

IRENA concern that current trends suggest new capacity will fall short of the requirement tripling goal of renewable power generation

IRENA highlights significant barriers that need to be overcome to support the implementation goal of tripling Renewable Power Generation

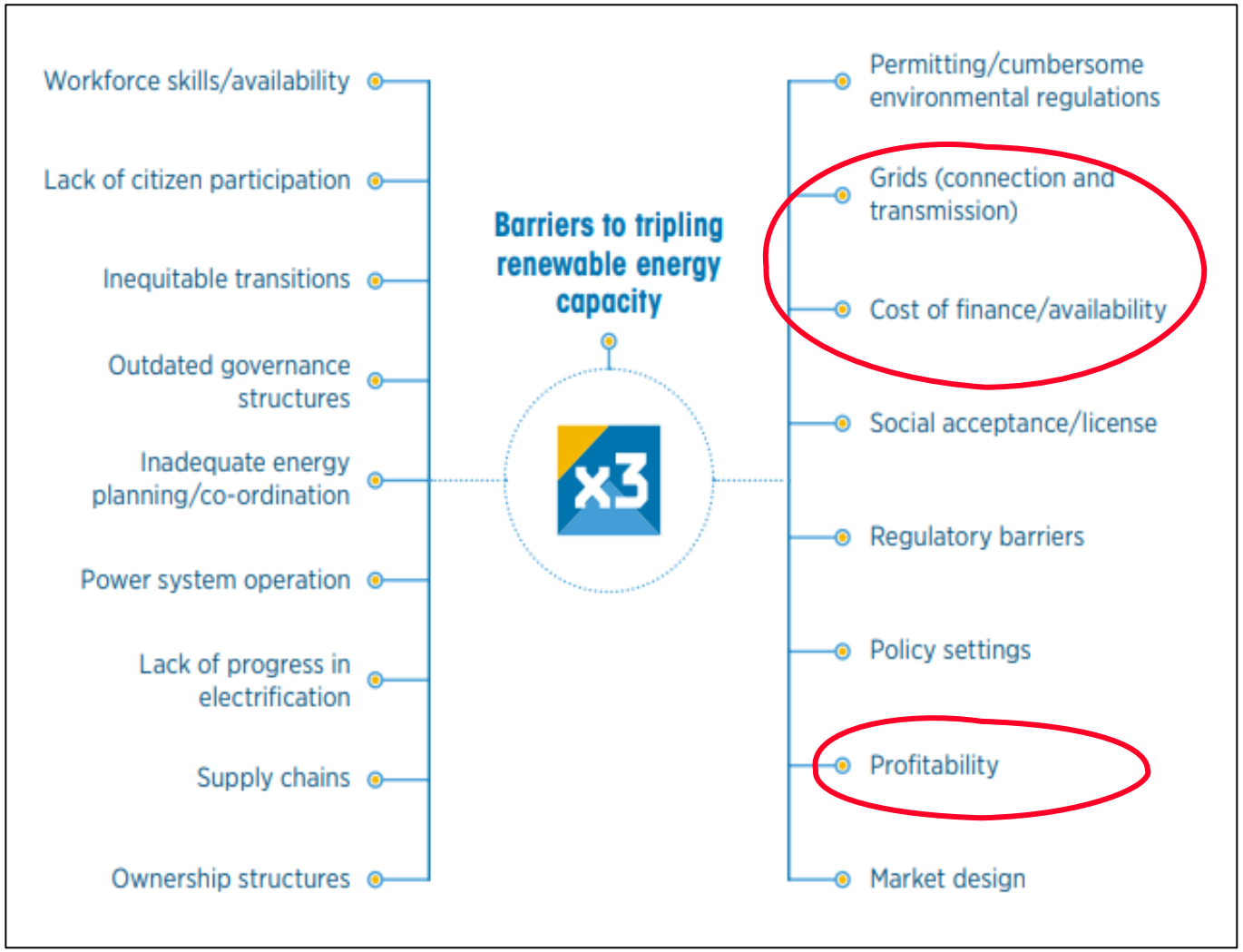


Source: (COP28 Presidency, IRENA and GRA, 2023).

Note: CSP = concentrated solar power; GW = gigawatt; PV = photovoltaic; VRE= variable renewable energy; bioenergy includes biogas, biomass waste and biomass solid

Source: IRENA, "Tripling Renewable Power by 2030: The role of the G7in turning Targets into Actions"

Significant Barriers to the Energy Transition



To support the rapid growth in renewable capacity an accelerated deployment of crucial enabling infrastructure is necessary:

- Investment and progress in modernising, digitising and expanding electricity grids;
- Increased adoption of grid flexibility options including energy storage and demand side management.

In 2023, investments in electricity grids and flexibility sources to integrate higher shares of renewable power were USD 368 billion -

- **Around half of the USD 720 billion annually required on average** to **integrate the triple renewable capacity**
- Another substantial hurdle is the cost of funding currently
- This additional Capital has to come from somewhere?
- Alternative sources of funding is required

Source: IRENA, "Tripling Renewable Power by 2030: The role of the G7in turning Targets into Actions"

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The Value add

How may Hitachi Energy CFA support ?

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Financing the Energy Transition – Hitachi Energy CFA view

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- **The two "asset classes"**. Renewable Power Generation and Transmission & Distribution (grid infrastructure) – both need attention, funding solutions and supportive frameworks. But not one and same. T&D and grid stability investments are (in comparison to Renewable Power)
  - enablers to the green transition,
  - with a very different lifecycle cost profile (e.g. longevity, O&M), and
  - operating on a fundamentally different revenue stream/model (e.g. market, tariff based).
  - ➢ Any financial support frameworks need to better reflect the fundamentally different features of each asset class

- **"All hands-on deck"**. Following the investment requirements in the T&D space to allow for the Energy Transition, the financing needs are enormous;
  - Debt and Equity. Even at the level of "the big-and-strong utilities"
  - Every funding source, e.g. capital markets, commercial banks, export financing systems, MDB
  - Various types of financing solution, from short-term payment solutions, construction bridge financing to long-term debt
  - ➢ All is needed to make the Energy Transition - All stakeholders need to contribute

- **Hitachi Energy value-add, the supplier contribution**
  - Export Financing - based on manufacturing footprint and overall sourcing matrix (ECA and/or Export Bank; e.g. Serv, EKN, JBIC)
  - Short-term financing - based on the commercial contract and each party's respective payment requirement

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“Big ticket financing via the supply chain – Export support systems

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Value add in the Supply chain

The export support system(s)

The Hitachi Energy sourcing matrix and Export Credit eligibility

Export credit financing vs. Bank debt financing vs. Bond market financing

Corporate financing vs. Project financing

Milestone payments vs. Deferred payments

Private Public Partnership vs. Build Own Transfer vs. Owner developed project

etc.

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The Benefits of OECD regulated ECA backed finance

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Debt Financing; A Buyer Credit; Long-term debt accounting (customer side)

The loan arrangement is “tied to” the Hitachi Energy commercial contract

Benefits for customers:

- **Funding diversification** (away from and/or alternative to capital markets and bank loans)
  - Via the Hitachi Energy commercial contract our customers may access funding sources they otherwise cannot – the Export Credit Agency backed export support systems
  - Hitachi Energy – close proximity to the SE, CH, JP systems
- **Cash-flow** tailored to the commercial contract and economic life of asset, cost of negative carry, (relatively) flexible out/in payment plans (vs. capital markets)
- **Long-tenors** – for renewable projects up to 22 years repayment (plus construction period, with no cash-out)
- **Amounts** – robust system and big pockets, very large amounts possible
- **Green options**, for marketing purpose
- **Competitive pricing** – at market, the benefits are the features above

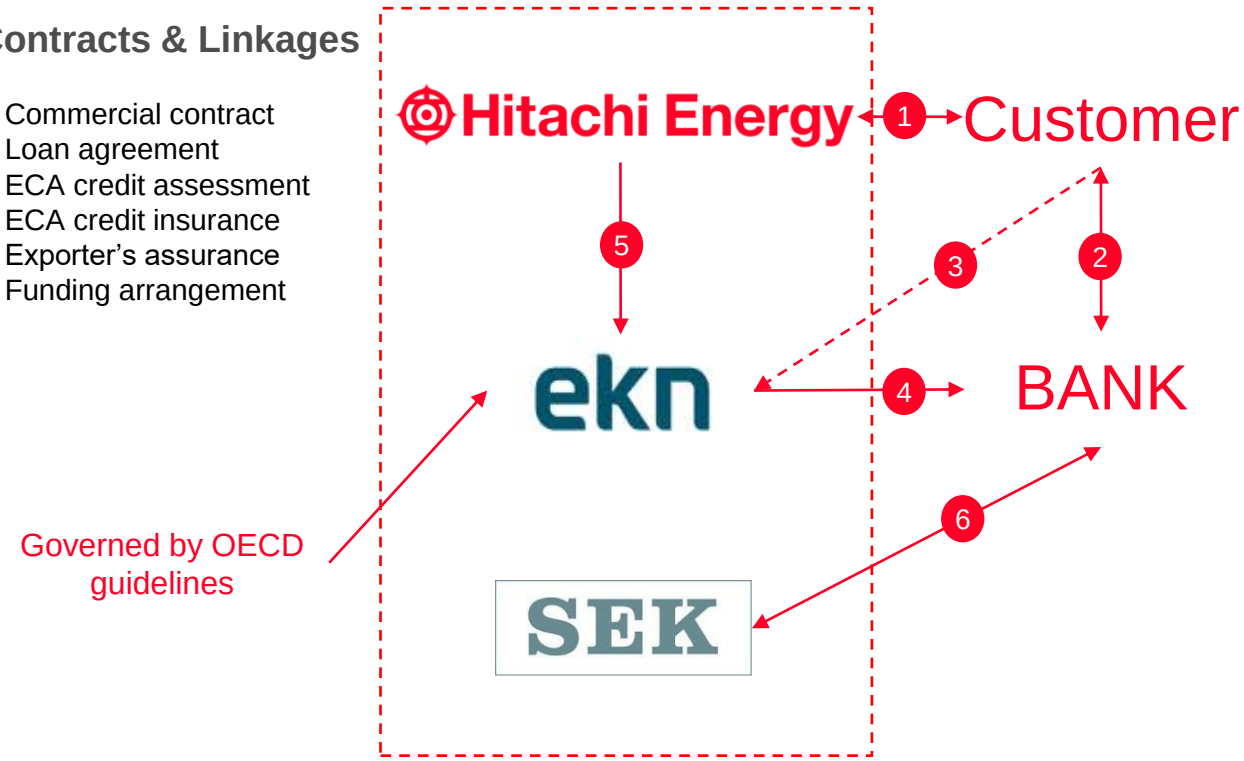
ECA Finance - Basics – what it is (for Illustration Purposes Only

Swedish Export Credit system set-up

Swedish Export Credit system set-up

Contracts & Linkages

1. Commercial contract
2. Loan agreement
3. ECA credit assessment
4. ECA credit insurance
5. Exporter's assurance
6. Funding arrangement



An Export Credit financing is

- a **loan agreement to finance export contracts** based on a loss on claim guarantee designed for banks as **provided by an Export Credit Agency**
- a **„buyer credit" regulated** by the Arrangement on Officially Supported Export Credits ("the OECD consensus")
- **only available to borrower via support from its supplier** (the exporter)
- based on the local application of the OECD consensus and the existence – if any - of a funding partner in the local country

In case all Export Credit systems are the same

- Are there any differentiators?
- What is in this for the Buyer/Borrower?

What is the competitive edge?

Some key initial information requirements

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1

The Hitachi Energy offering

- What is the Hitachi Energy scope?
- Est. total HE scope amount? Contract currency?
- Who is Seller (Country entity)? BU?
- What does the HE sourcing matrix look like?
- Milestone contract / Payment terms / Terms of delivery

2

What are the Customer's financing needs/pain points?

- A CAPEX supportive debt financing solution
- Cash-flow solution (Pay-later?)
- Project financing (SPV based)? vs; Diversification of Corporate funding (Treasury based)?
- No Go - "Cheap financing" / Soft loans / (New) Business Models (XaaS/BOOT/Rental) / Limited bank credit lines / No funding / The Mission Impossible

3

Customer side info

- Ownership structure, who is the Hitachi Energy Customer/ contractual party?
- Customer, in what capacity?
  - Buyer / Owner / End-user
  - In case of a SPV; What is the ownership structure?
  - Intermediary? EPC? If yes, info on end-user is likely needed
- Country of
  - Project
  - Customer/Borrower

4

Customer vs. Hitachi Energy project view

- What is the est. total project cost (Customer's view/scope)? (To relate to the HE scope amount)
- What parts make up the difference between HE scope vs. Customer scope? Are there herein any possible linkages to Hitachi Energy?

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Use cases

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Sub-Saharan Africa's largest photovoltaic project (MW 370), Angola

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Background

Angola is largely dependent on fossil fuels for its electricity generation. As a result, the Angolan Ministry of Energy and Water Resources wants to increase the share of sustainable energy in the country and switch to renewable sources such as solar replacing some diesel generated electricity generally used in rural areas. This project will help to increase and contribute to the electrification of several local communities and increase the share of renewable energy sources in the country.

Project Facts

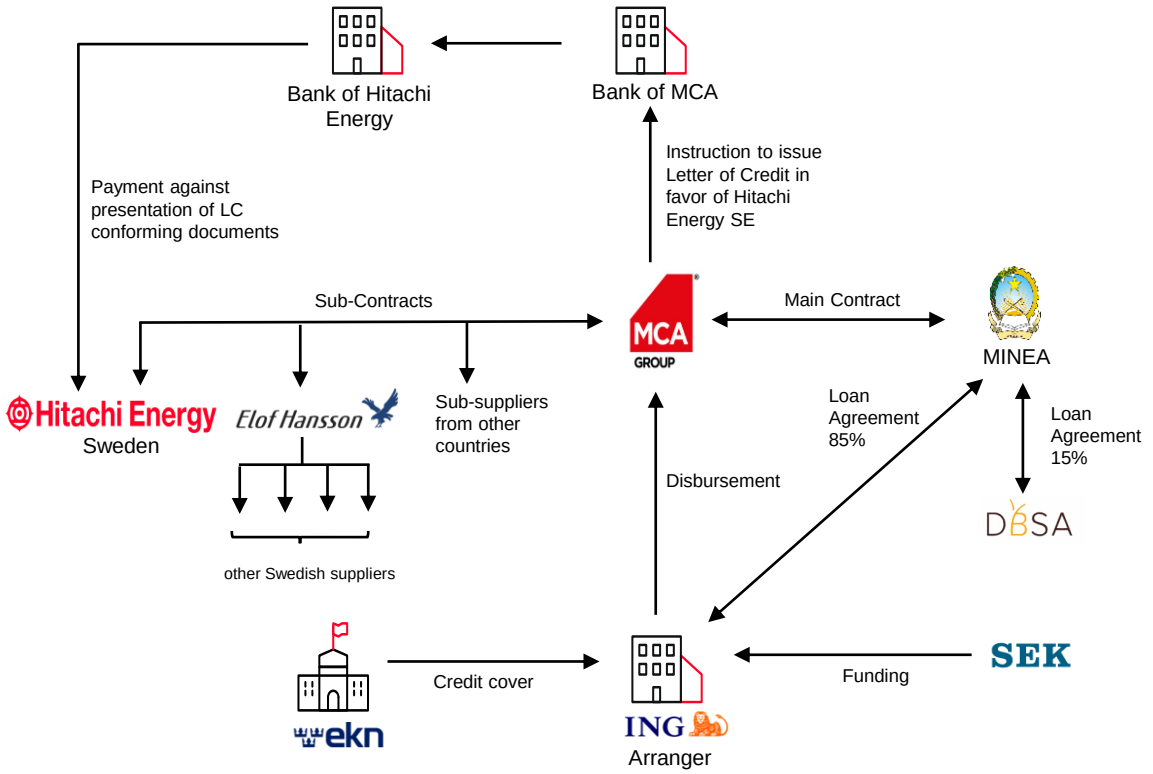
Hitachi Energy supplying entity:	Hitachi Energy Sweden as the anchor supplier together with 15-20 Swedish suppliers under coordination of Swedish Trading House Elof Hansson
Hitachi Energy scope:	System design, main power equipment supply, bringing DC power from the solar panels into AC power on the grid, testing and commissioning services
Contract Value:	EUR 560 million
Developer/ EPC Contractor:	Sun Africa LLC, USA / MCA Group, Portugal
End-Customer:	MINEA - Ministry of Energy and Water, Angola

CFA Involvement

Introduction of Swedish Export Credit system to Developer/EPC Contractor; Advise on **financing solution** for the entire project as well as on **payment and risk mitigation solution** related to supplies of Hitachi Energy Sweden; Idea of involving Swedish Trading House (Elof Hansson) in order to fulfill the Swedish sourcing required for ekn (the Swedish Export Credit Agency) coverage.

Further Details

85% of the contract value were financed by a loan from ING Bank, funded by SEK at a fixed CIRR (Commercial Interest Reference Rate) with a tenor of 18 years and a coverage from ekn. 15% of the contract value were financed by the Development Bank of Southern Africa (DBSA). Financial close was in May 2020.



For more details please contact

Regional Marketing and Sales Manager:	Torben Sjöholm, Sweden
Customer Finance Advisor:	Tommy Östling, Sweden

Financing as key enabler for implementation of the project/ supporting UN Sustainable Development Goal 7

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REF 2: 1.400 MW Interconnector Project „North Sea Link“, United Kingdom-Norway

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Background

North Sea Link was built with the intention to increase the security of electricity supplies while reducing annual CO2 emissions. The proposed 720 km long subsea interconnector will be routed from the converter station in East Sleekburn near Blyth in the UK to Kvilldal in Norway. The cable passes through UK and Norwegian territorial waters. The North Sea Link provides the UK access to Norwegian hydropower whilst giving Norway access to the UK's increasing portfolio of wind power and renewable energy.
The reduction in CO2 emissions has been calculated to be an equivalent of 2.65 million tons per year.

Project Facts

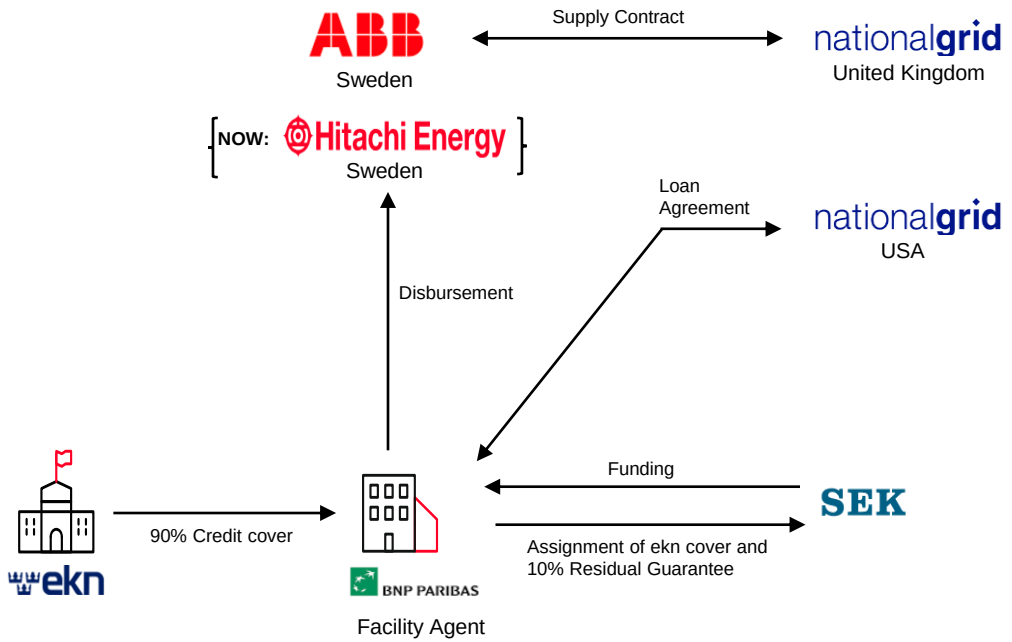
Hitachi Energy supplying entity:	Hitachi Energy Sweden (SEABB), formerly ABB Sweden
Hitachi Energy scope:	Delivery of converter stations for HVDC transmission link
Contract Value:	USD 230 million
Customers:	National Grid, United Kingdom

CFA Involvement

Advise on and structuring of **financing solution** including ekn cover (Swedish Export Credit Agency).

Further Details

BNP Paribas facilitated the financing facility of around USD 230 million in the form of an export credit with funding from SEK (Swedish Export Credit Cooperation) at a fixed CIRR (Commercial Interest Reference Rate) with a maturity of 11 years and a guarantee from ekn. The loan was agreed to be provided to National Grid, US which is a subsidiary of National Grid UK.



For more details please contact
Regional Marketing and Sales Manager:
Customer Finance Advisor: Tommy Östling, Sweden

Awarded as Best Export Credit Agency-Deal of the Year by „Global Trade Review“ Magazine in 2016

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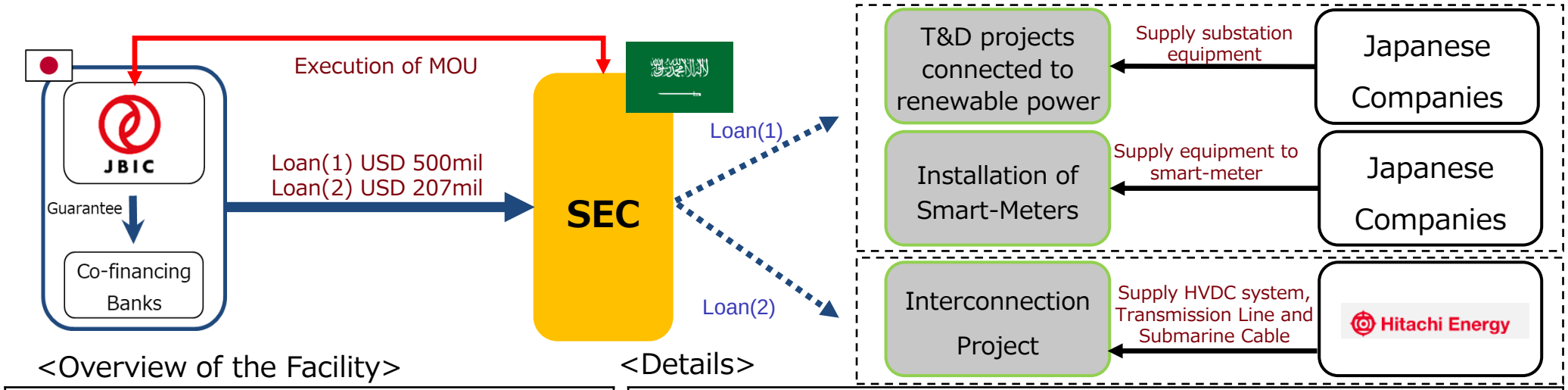
■ Case Study: SEC GREEN



<Overview of the Facility>

Borrower	Saudi Electricity Company (SEC)
Lender	JBIC and Japanese Banks
Signing Date	(1) 7th July, 2021 (2) 21st February, 2023
Amount	(1)USD 500 million (2)USD 207 million
Use of Proceeds	(1) T&D projects connected to renewable & Smart-Meter projects (2) an electricity interconnection project between KSA and Egypt

<Details>

(1) T&D	◆ Some Japanese companies have continuous business with SEC regarding the supply of substation equipment.
(1) Smart Meter	◆ SEC has plan to introduce Smart Meters from various supplier & some Japanese Companies was the listed potential supplier.
(2) Inter-connection project	◆ The project will construct a **3,000 MW high-voltage direct current (HVDC) system produced by Hitachi Energy** with 1,350 km of overhead power lines and 22 km of submarine cables to connect northwestern KSA and Egypt. ◆ JBIC GREEN loan is provided for the construction in KSA.

Case Study: Project Lightning

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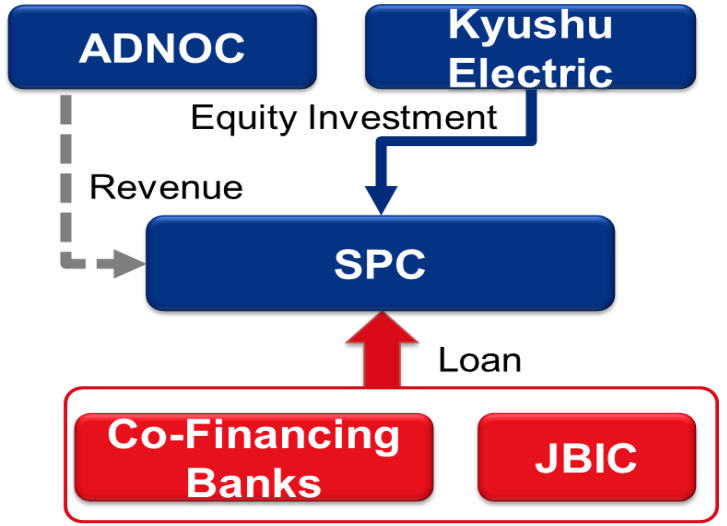
Project Financing for HVDC Offshore Electricity Transmission Project in Abu Dhabi

Overview	
Borrower	**ABU DHABI OFFSHORE POWER TRANSMISSION COMPANY LIMITED L.L.C.**
Sponsor	**ADNOC** **Kyushu Electric Power Company etc.**
Loan amount	**1,201 mil USD (JBIC share)**
Finance Close	**September 22, 2022**

- **This involves the construction, ownership, and operation of HVDC (high voltage direct current) offshore power transmission system linking two offshore production facilities owned by ADNOC with the Abu Dhabi onshore power grid.**
- **It will receive payment of power transmission charges from ADNOC for 35 years after the construction.**



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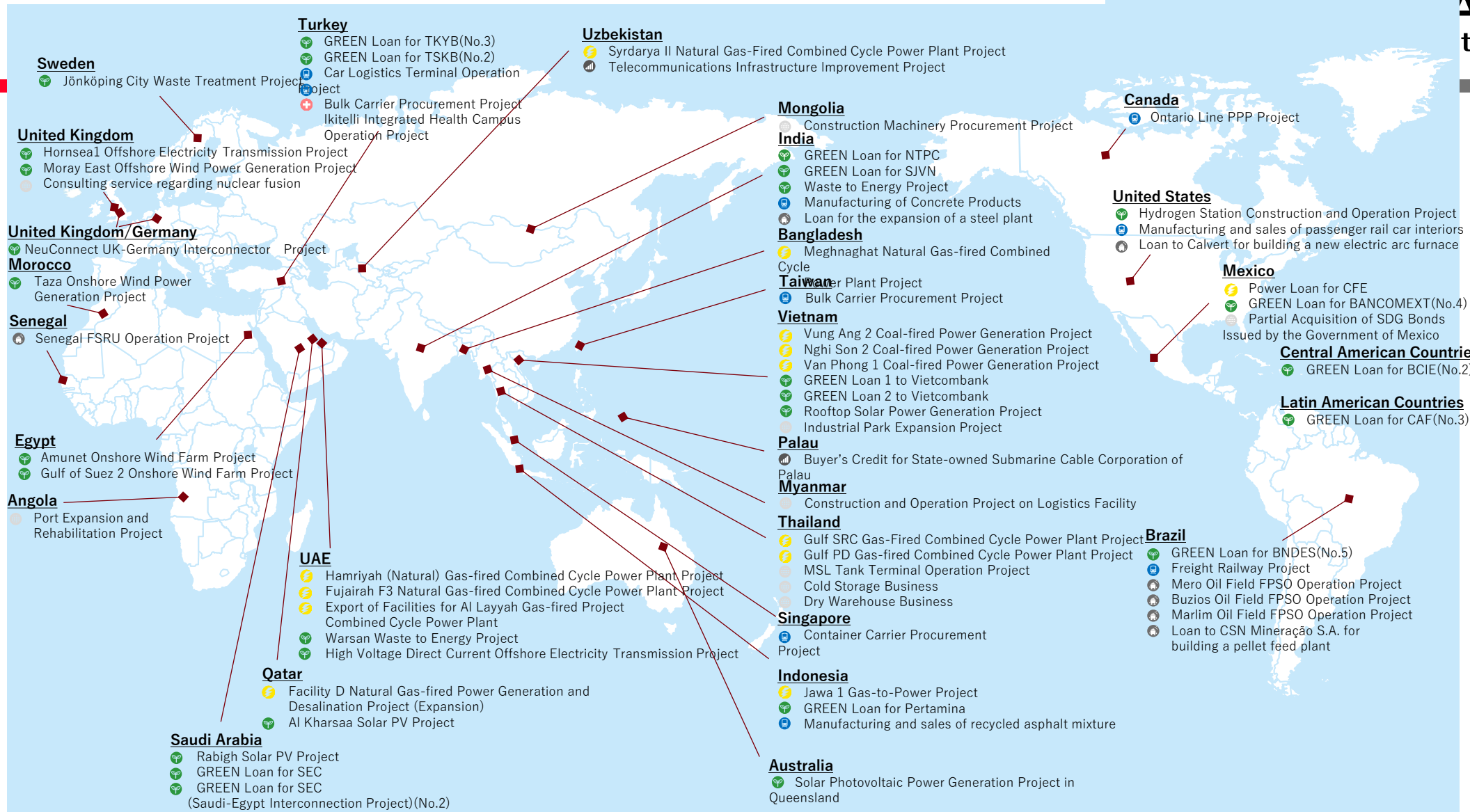
Recent Major Overseas Infrastructure Projects (Loans, equity participations, and guarantees in the last five years)



: Power generation : Renewable energy/environment : Transportation systems : Telecommunications : Energy resources : Hospitals : Others

Note: "Renewable energy/environment" includes solar power, wind power, geothermal power, hydro power, waste for energy, energy efficiency, and other projects related to global environmental conservation.

Note: Some listed projects were approved more than the five years ago.

As of the end of March 2023

The Customer Finance Advisory team

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Q & A

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