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EDGE Practical Steps for Zero Carbon Buildings

Dr. Ommid Saberi
2021 Asia-Pacific
Forum on Green Low-Carbon
Development

20 October 2021
14:00 Beijing time

www.edgebuildings.com

EDGE is an innovation of IFC, a member of the World Bank Group.



亚太绿色低碳发展高峰论坛
Asia-Pacific Forum on Green Low-Carbon Development

Dr. Ommid Saberi

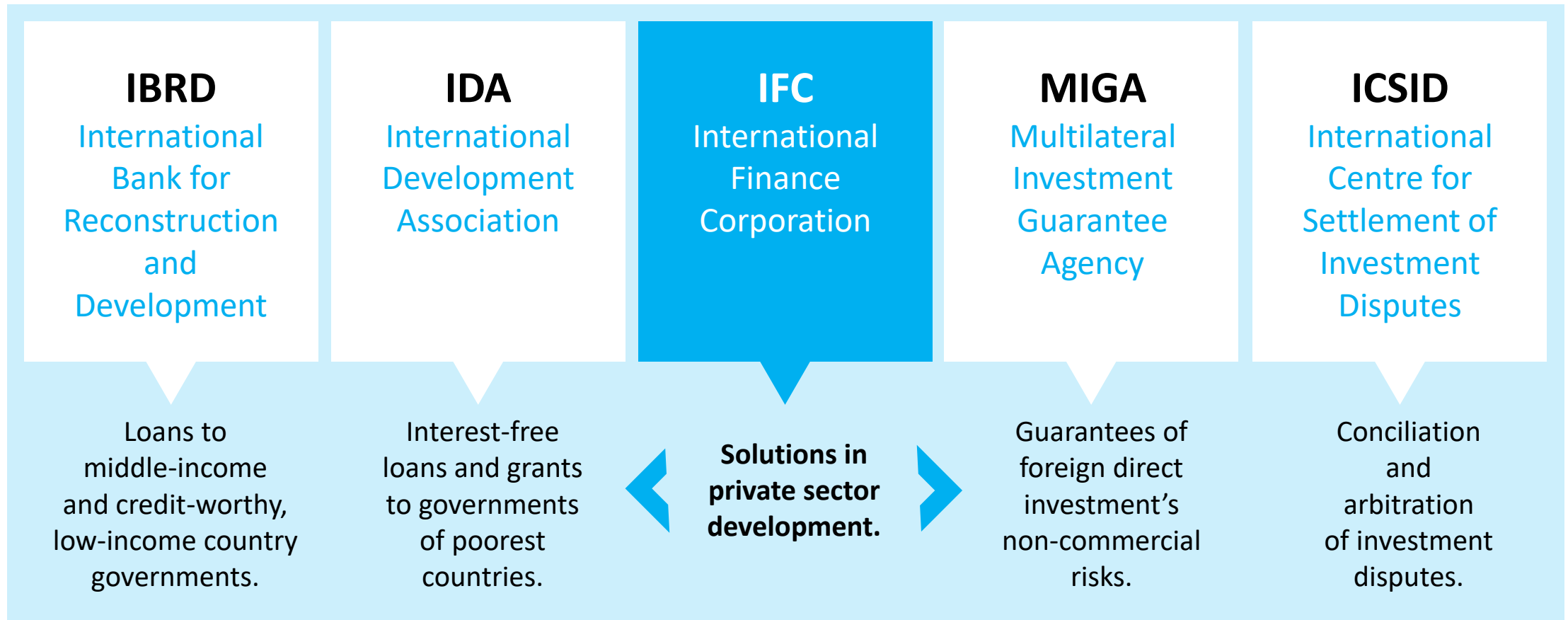
Senior Green Building Industry
Specialist

Global Technical Lead – EDGE
Program

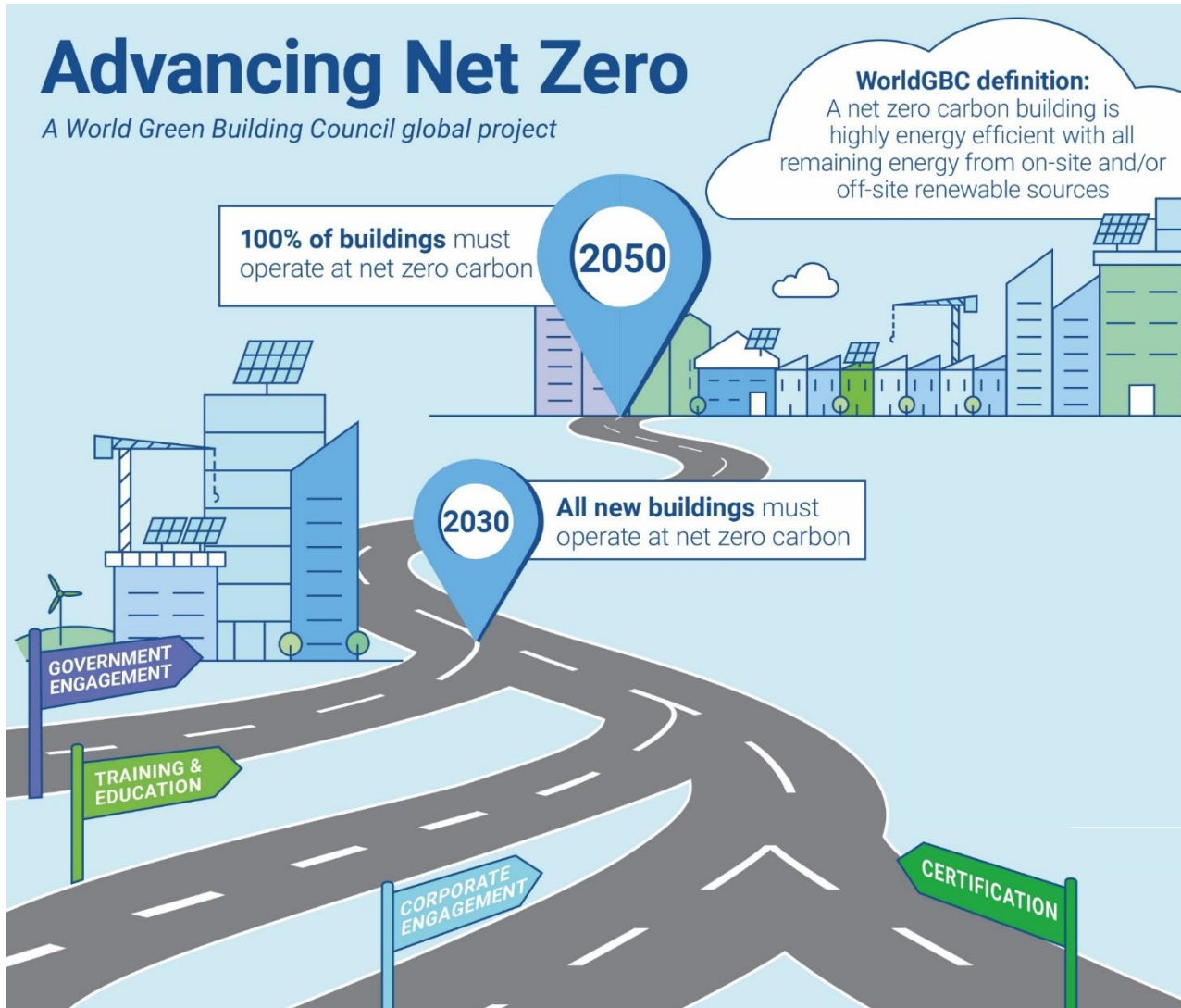
IFC – World Bank Group
Washington DC – USA



IFC is a Member of the WORLD BANK GROUP



Climate Change Cannot Be Solved Without Tackling Building Emissions



Climate Pressures:

- Buildings account for 19% of the world's GHG emissions
- Paris alignment means
 - by 2030 all new buildings must be zero net carbon
 - by 2050 ALL buildings must be zero net carbon

Urbanization Pressures:

- 90 million middle class growth a year
- 70% world's population in urban areas in 2050

Economic Opportunity:

- 80% of viable potential is untapped
- Lower utilities increase profits and remaining disposable income

Urgent need to scale up action



IFC's Four-part Strategy To Support Green Building Growth



EDGE: Excellence in Design for Greater Efficiencies

1.

Free Software



Further Resource: [EDGE Software Demo](#)

2.

Achievable Standards



3.

Verified Green Label



EDGE is Available in a Variety of Building Typologies

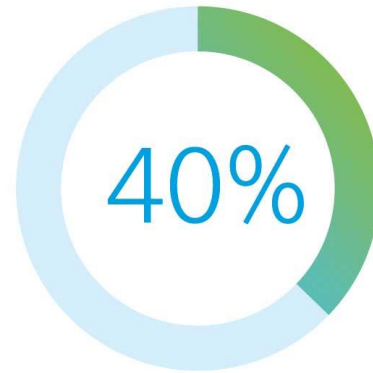


There are Three Levels of EDGE Certification



Level 1 - EDGE Certified

20% or more savings in energy, water, and embodied energy in materials.



Level 2 - EDGE Advanced

EDGE certified with 40% or more on-site energy savings.

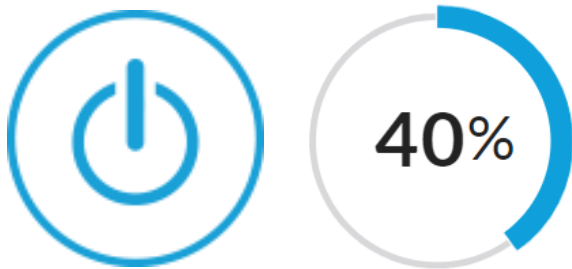


Level 3 - Zero Carbon

EDGE Advanced with 100% renewables or purchased carbon offsets.

EDGE Zero Carbon Certification

- ① **Certify under EDGE Advanced standard**



- ② **One year of occupancy**




- ③ **Match usage with renewables or offsets**



Renew every 2-4 years

EDGE Zero Carbon Certificate Will Show Operational Values




This certifies that



ArthaLand Century Pacific Tower

has achieved a

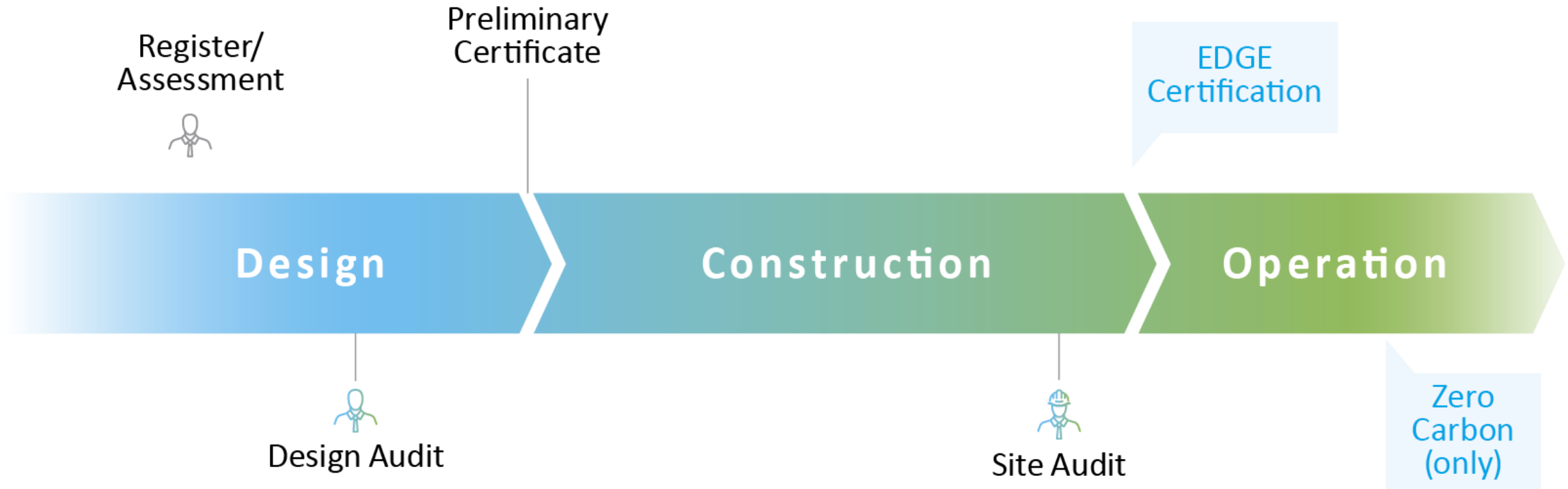
ZERO CARBON CERTIFICATE

The project saves 40% or greater on-site energy and offsets the equivalent of the carbon it emits from annual energy use for building operations through the production of renewable energy on-site, and/or the purchase of off-site renewable energy or carbon credits.

DEVELOPED BY ArthaLand	CERTIFIED BY Philippine Green Building Initiative 
ENERGY DEMAND (kWh/YEAR): 5,108,953 kWh/year ENERGY SAVINGS OVER BASELINE: 45% ON-SITE RENEWABLE ENERGY GENERATION (kWh/YEAR): 0 kWh/year ON-SITE RENEWABLE ENERGY GENERATION (%): 0 % OFF-SITE RENEWABLE ENERGY (kWh/YEAR): 5,108,953 kWh/year OFF-SITE RENEWABLE ENERGY (%): 100% CARBON EMISSIONS (tCO₂/YEAR) 3,023 tCO ₂ /year	CARBON OFFSET (tCO₂/YEAR): 3,023 tCO ₂ /year CARBON OFFSET (%): 100% FINAL EMISSIONS: 0 tCO ₂ /year CATEGORY: Zero Carbon DATE OF ISSUE: Sep 17, 2019 DATE OF EXPIRY: Sep 17, 2021 CERT NUMBER: LP6-PHL-19061810070675-Z1

**WORLD BANK GROUP**
IFC International Finance Corporation

The Certification Flow



EDGE Website Has a Library EDGE Certified **Case Studies**, Which Can Be Used For **Promotion** Or **Proof-of-concept**



[ProCredit HQ \(BGR\)](#)
Offices by ProCredit



[BIO \(COL\)](#)
Homes by Constructora Colpatría



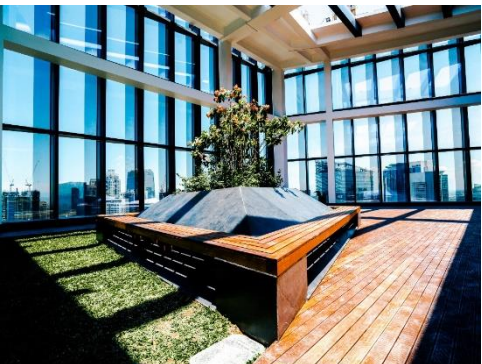
[Altron \(ZAF\)](#)
Warehouses by Equites



[Ricons Plant \(VNM\)](#)
Industrial by Ricons



[Student Housing \(NGA\)](#)
Education by Univ. of Abuja



[Century Pacific \(PHL\)](#)
Offices by ArthaLand



[MBU \(GHA\)](#)
Hospital by ABP



[101 Bogor \(IDN\)](#)
Hotel by Panoramaland



[Lidl Stores \(LTU\)](#)
Retail by Schwarz



[KAANA \(MEX\)](#)
Homes by Metric Developm.

CLICK ON LINKS FOR IN-DEPTH PROJECT STUDIES

Mapping a Zero Carbon Pathway for a Building Portfolio with EDGE

Inventory existing portfolio and retrofit options

1. Inventory carbon footprint ($\text{tCO}_2\text{e per year/m}^2$) with EDGE
2. Assess refurbishment costs versus GHG savings with EDGE
3. Prioritize least cost ($\$/\text{tCO}_2\text{e}$) refurbishments

Raise quality-on-entry criteria to for new build progressively

1. 100% EDGE Certified by 2022
2. 100% EDGE Advanced by 2024 (ready for EDGE Zero Carbon including carbon credits)
3. 100% EDGE Advanced by 2030 without carbon credits
4. 100% embodied carbon in materials offset by 2050

Communicate credible annual goals and report against them

1. Set annual portfolio goals for $\text{tCO}_2\text{e per year/m}^2$ using EDGE
2. Publicize annual quality-on-entry criteria to attract and prepare leading developers
3. Report on progress with EDGE GHG reporting

Company Plan
 $\text{tCO}_2\text{e per year/m}^2$



2020 2030 2040 2050

EDGE Definitions Are Aligned With International Green Finance Standards For Green Buildings



Certified GREEN
By an international
standard

&



Better performance
than the local baseline

&



Quantified
impact reporting

100% of finance or re-finance can be counted for climate co-benefits



Lenders And Developers Are Creating INNOVATIVE Financial Products For Green Buildings

CROSS-SELLING OPPORTUNITY



Case Study: HSBC's \$150 million ESG green loan for IndoSpace

Case Study: Bancolombia's \$400 million program for green homes

Case Study: Acorn's \$50 million green bond at London Stock Exch.

EDGE Certification in China is on the raise

住房和城乡建设部科技与产业化发展中心 (住房和城乡建设部住宅产业化促进中心)

世界银行国际金融公司：

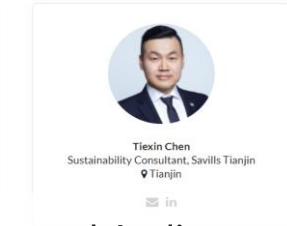
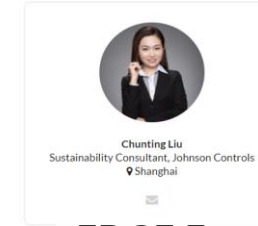
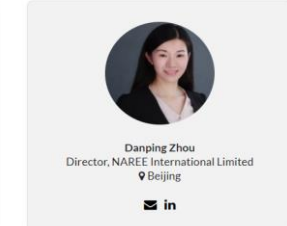
住房和城乡建设部科技与产业化发展中心与世界银行国际金融公司自 2016 年 9 月起就“中国绿色建筑评价标准与世界银行 EDGE 评价标准对标及碳排放计算方法论证项目”开展了合作研究。住房与城乡建设部建筑节能与科技司 2017 年 12 月 6 日组织召开了专家验收会议。

经技术论证和项目试评，验收组专家认为：依据《绿色建筑评价标准》GB/T50378-2014 条文要求，EDGE 系统生成的中国绿标合规报告和核查项评价工具表可作为评价绿色建筑评价标识项目的工具之一；EDGE 碳排放计算方法和材料含能数据可作为国标 11.2.11 加分项的支撑。下一阶段，我中心将结合此项目研究成果，报部批准后，推选适宜项目开展评价。

特此告知。

住房和城乡建设部科技与产业化发展中心

2018 年 2 月 6 日



EDGE Experts and Auditors



Guizhou Tower
Homes, Offices, Retail in China



MRCB New Office Building
Offices in China

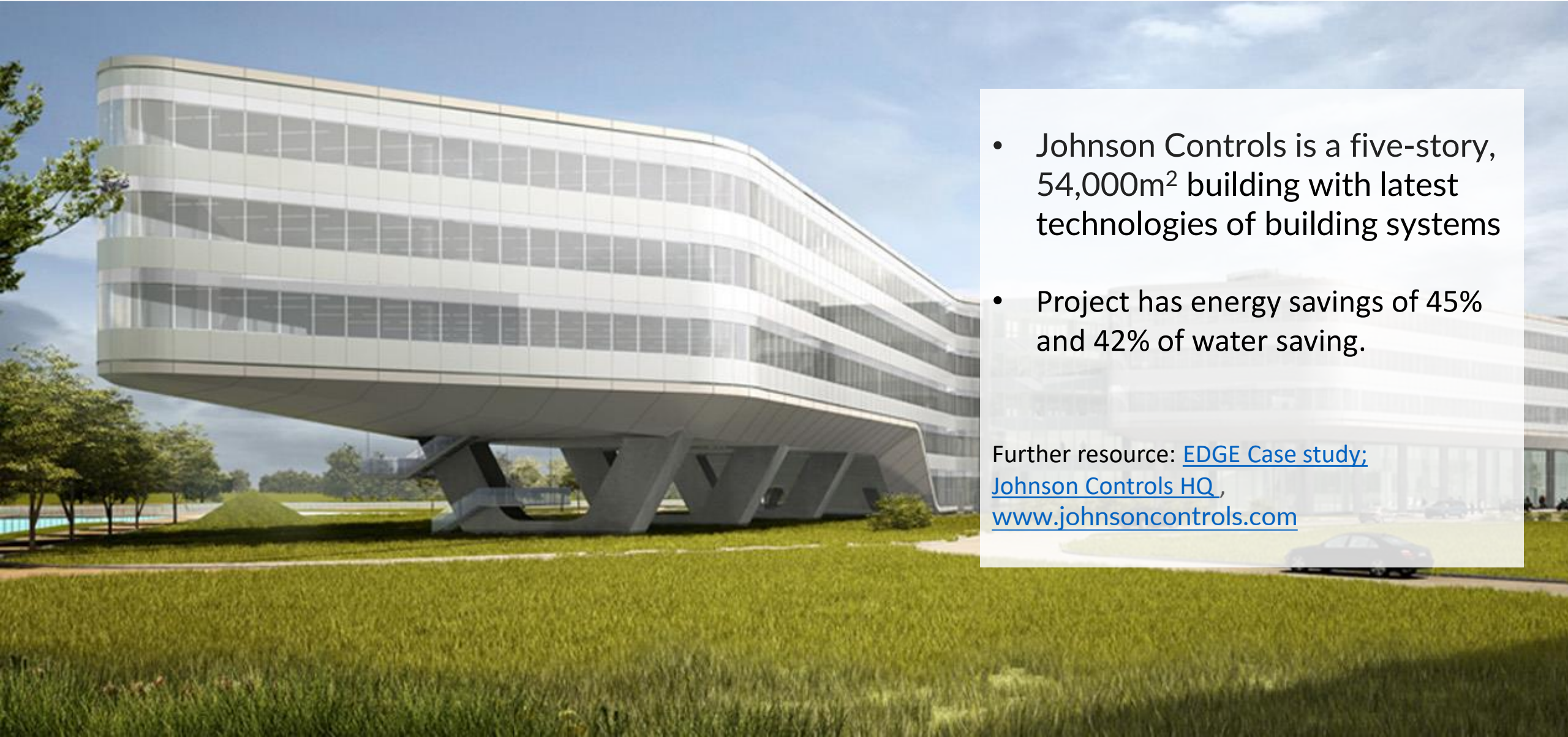


Johnson Controls HQ Asia Pacific
Offices in China



Bruck Passive House Hotel
Hotels in China

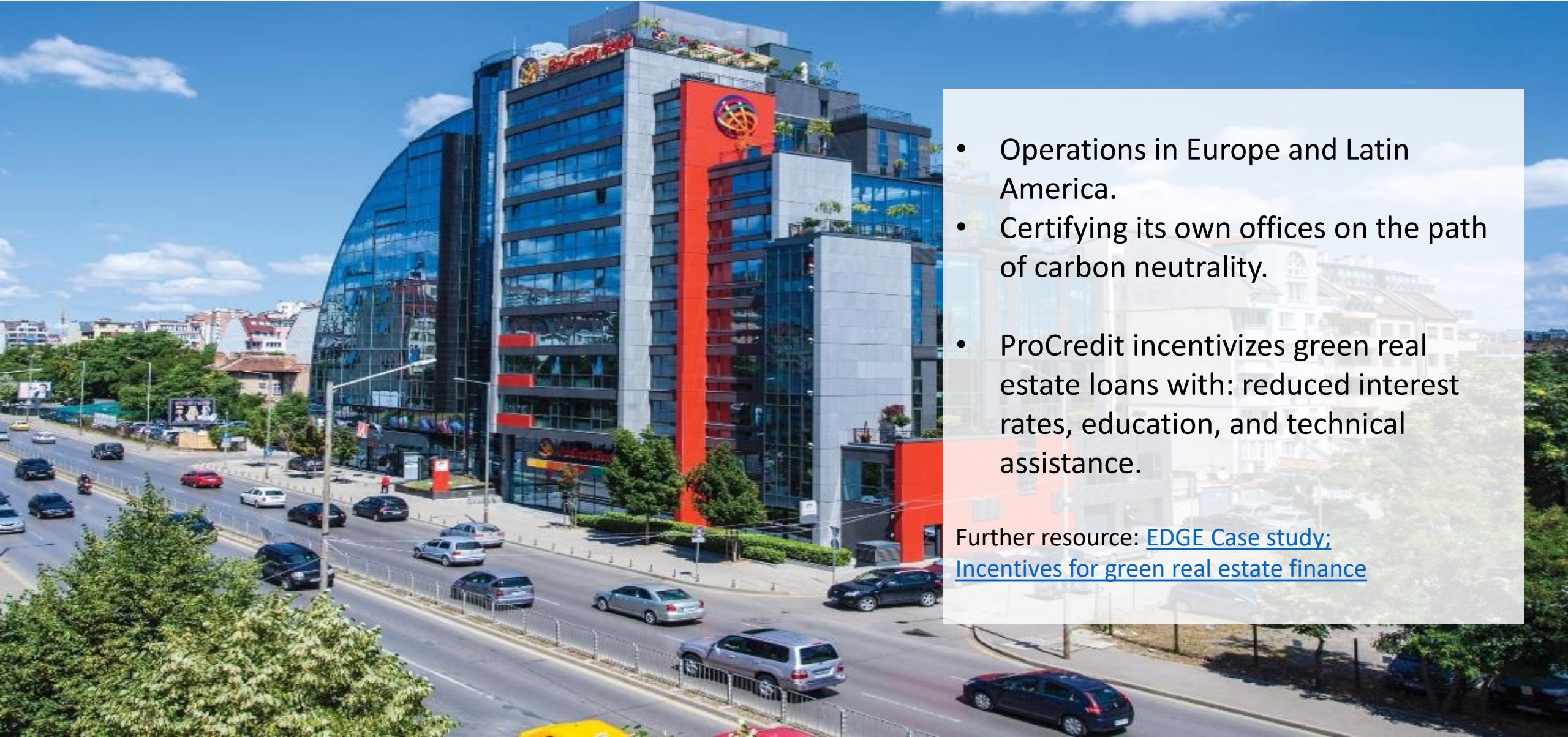
CASE STUDY: Johnson Controls Headquarter Asia Pacific – Shanghai, EDGE Advanced Certified



- Johnson Controls is a five-story, 54,000m² building with latest technologies of building systems
- Project has energy savings of 45% and 42% of water saving.

Further resource: [EDGE Case study; Johnson Controls HQ](#),
www.johnsoncontrols.com

CASE STUDY: Procredit Bank Is Certifying Its Own Offices And Launching A Green Real Estate Investment Program



- Operations in Europe and Latin America.
- Certifying its own offices on the path of carbon neutrality.
- ProCredit incentivizes green real estate loans with: reduced interest rates, education, and technical assistance.

Further resource: [EDGE Case study: Incentives for green real estate finance](#)

The logo features a stylized bar chart with five vertical bars of increasing height from left to right, colored red, orange, yellow, green, and dark green. To the right of the bars, the text "Building Resilience" is written in a large, bold, dark blue sans-serif font, with the word "Index" in a smaller font size positioned above the "Resilience" word.

Building Resilience Index



Identify Risk

based on the location of
your project



Manage Risk

as you design, build or
operate buildings



Disclose Risk

by presenting buildings'
letter grade resilience level

Building Resilience Index is an innovation of IFC, a member of the World Bank Group.

EDGE is currently funded by the UK Government with original funding by Switzerland's State Secretariat for Economic Affairs (SECO)



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

Additional support has been provided by Austria, Canada, Denmark, ESMAP, Finland, GEF, Hungary, and Japan.



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Finance Corporation**
WORLD BANK GROUP

Creating Markets, Creating Opportunities

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