

INTERNATIONAL **DIRECTORS** SUMMIT 2019

The Trust Compass: Resetting the Course

14 & 15 OCT 2019 | Shangri-La Kuala Lumpur

Creating Better Places
Responsible Investment through Sustainability

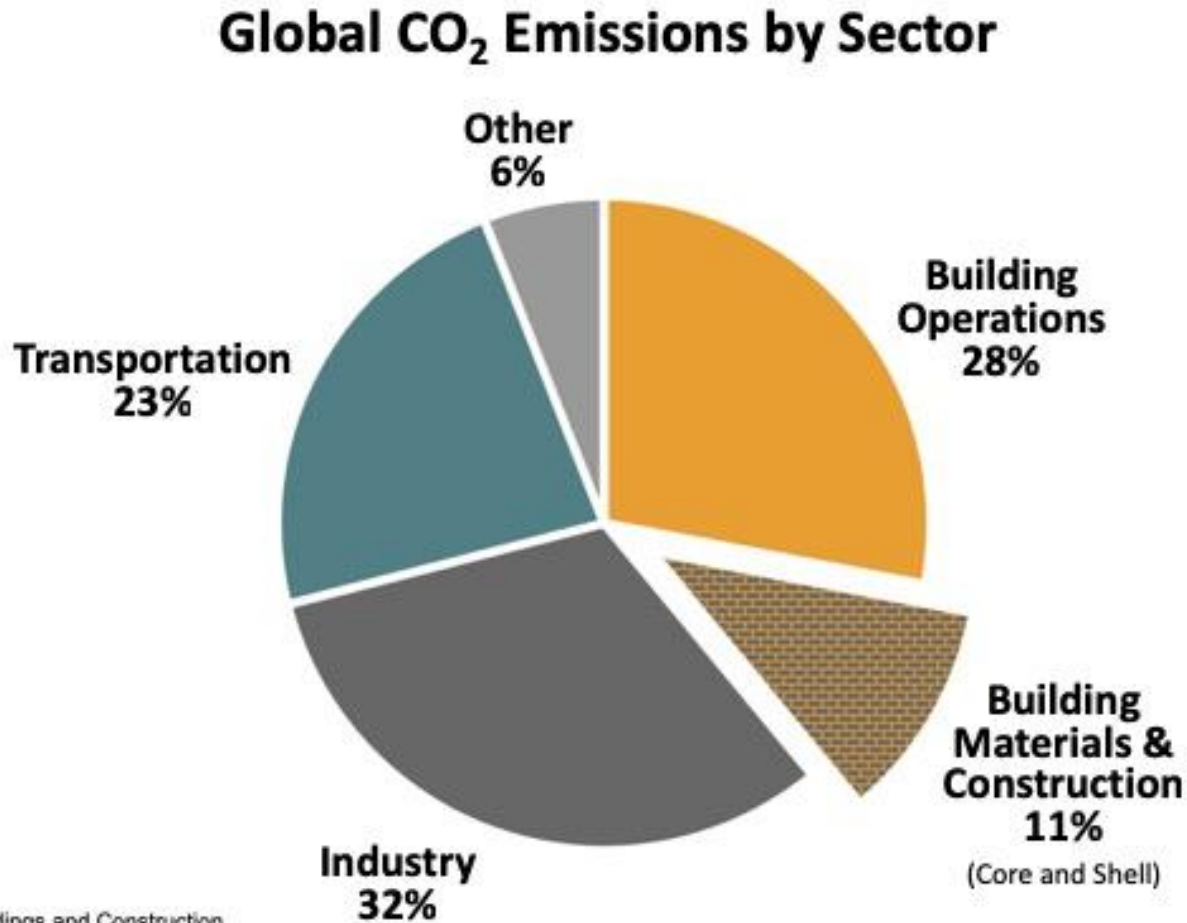
Michael E. Long
Lendlease

Datin Sunita Rajakumar
Climate Governance Malaysia

Today's Global Climate Landscape



BUILDINGS GENERATE NEARLY 40% OF ANNUAL GLOBAL GHG EMISSIONS



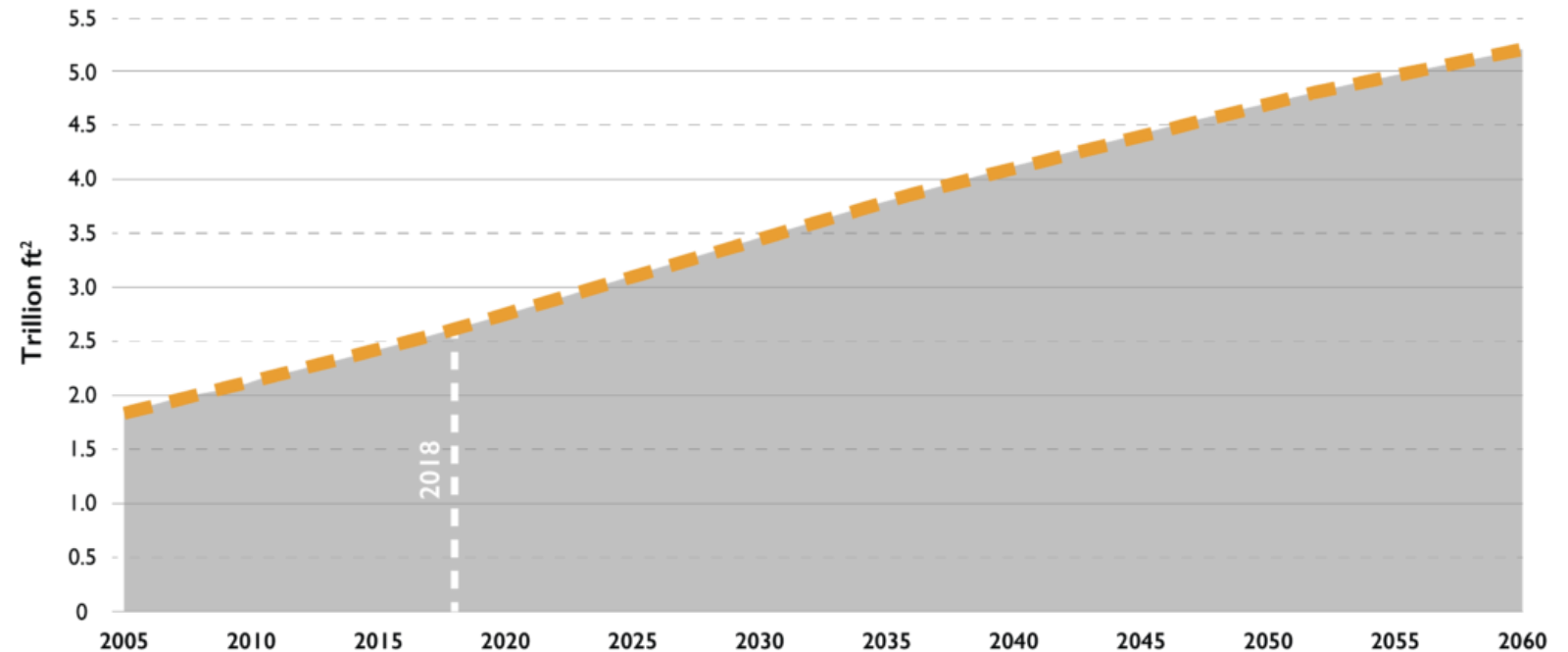
Approximately **two-thirds** of the building area that exists today will still exist in **2050.**

Source:
Global Alliance for Buildings and Construction.
2018 GLOBAL STATUS REPORT.

The world is currently undergoing the largest wave of urban growth in human history.

More than half of the global population is now concentrated in urban areas, and by **2060**, two-thirds of the population will live in cities

GLOBAL BUILDING STOCK WILL DOUBLE IN AREA BY 2060



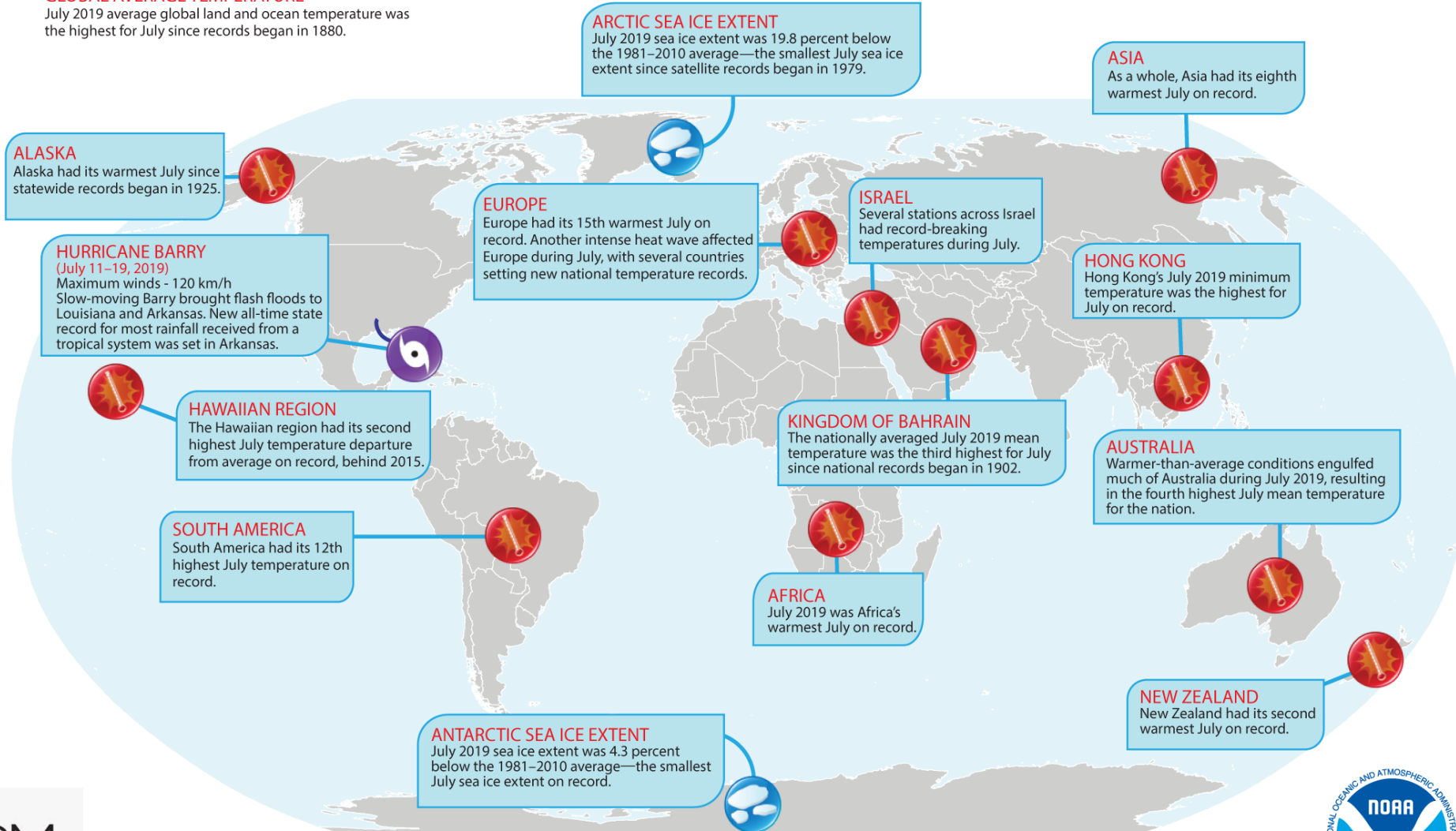
Global Floor Area Growth

© 2018 2030, Inc. / Architecture 2030, All Rights Reserved.
Source: UN Environment Global Status Report 2017
Data Source: IEA (2017), World Energy Statistics and Balances

SELECTED SIGNIFICANT CLIMATE ANOMALIES AND EVENTS – JULY 2019

GLOBAL AVERAGE TEMPERATURE

July 2019 average global land and ocean temperature was the highest for July since records began in 1880.

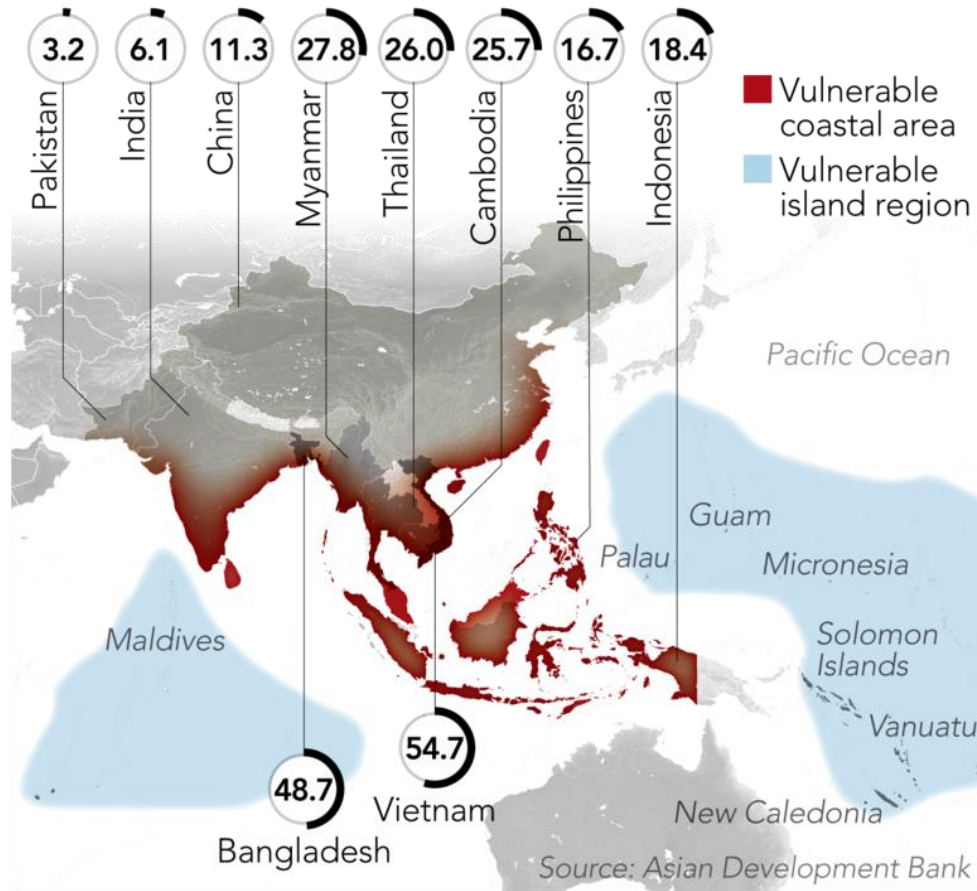


Please Note: Material provided in this map was compiled from NOAA's State of the Climate Reports. For more information please visit: <http://www.ncdc.noaa.gov/sotc>

PHYSICAL RISK FROM CLIMATE CHANGE

Swathes of Asia's coastline at risk from rising sea levels

(in percent of country population living in low-elevation coastal zones)



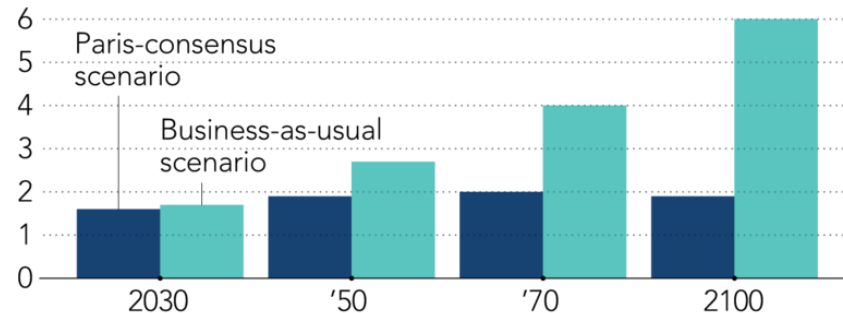
ASIA INSIGHT

Storm clouds loom for Asian companies unready for climate change

Increasingly severe flooding poses challenges from finance to farming

DOMINIC FAULDER, Associate Editor, Nikkei Asian Review
 DECEMBER 18, 2018 17:02 JST

Projected average temperature increase for the land area of Asia (in degrees C)



Source: Asian Development Bank

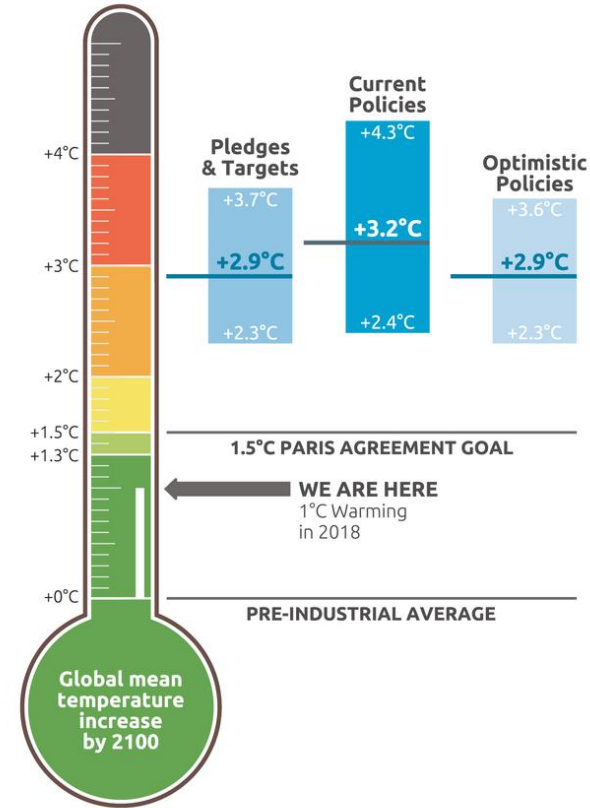


CLIMATE CHANGE IS FORCING INSURANCE INDUSTRY TO RECALCULATE

Extreme weather events and estimated financial losses worldwide (1990–2016)



* Adjusted to 2016 values based on country CPI
 @StatistaCharts Source: The Lancet Countdown on Health and Climate Change



CAT warming projections
Global temperature increase by 2100

September 2019 Update

Every year, we extract
55 billion tons
of bio-mass, fossil
energy, metal and
minerals from the
earth. This is almost
10 tons for every
person in the world.

Source: www.theworldcounts.com

Several promising trends in **climate investment and policy** deserves recognition. They could mean a better outlook to come.

IT'S NOT ALL DOOM AND GLOOM

1

The Paris Agreement means the majority of nations are working to implement climate plans, many of which also include investment pathways.

2

Corporate and Investor Disclosure initiative engage broader capital markets, the financial system, and large corporations to align with low-carbon and climate resilient development.

3

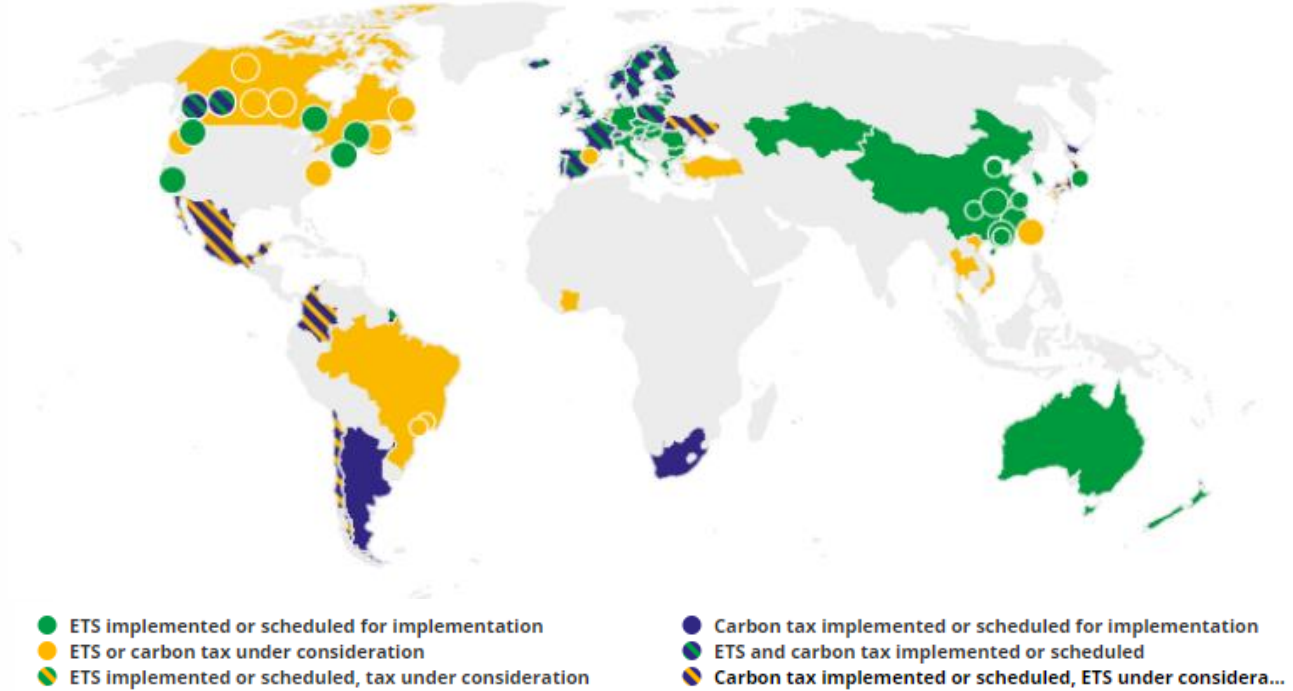
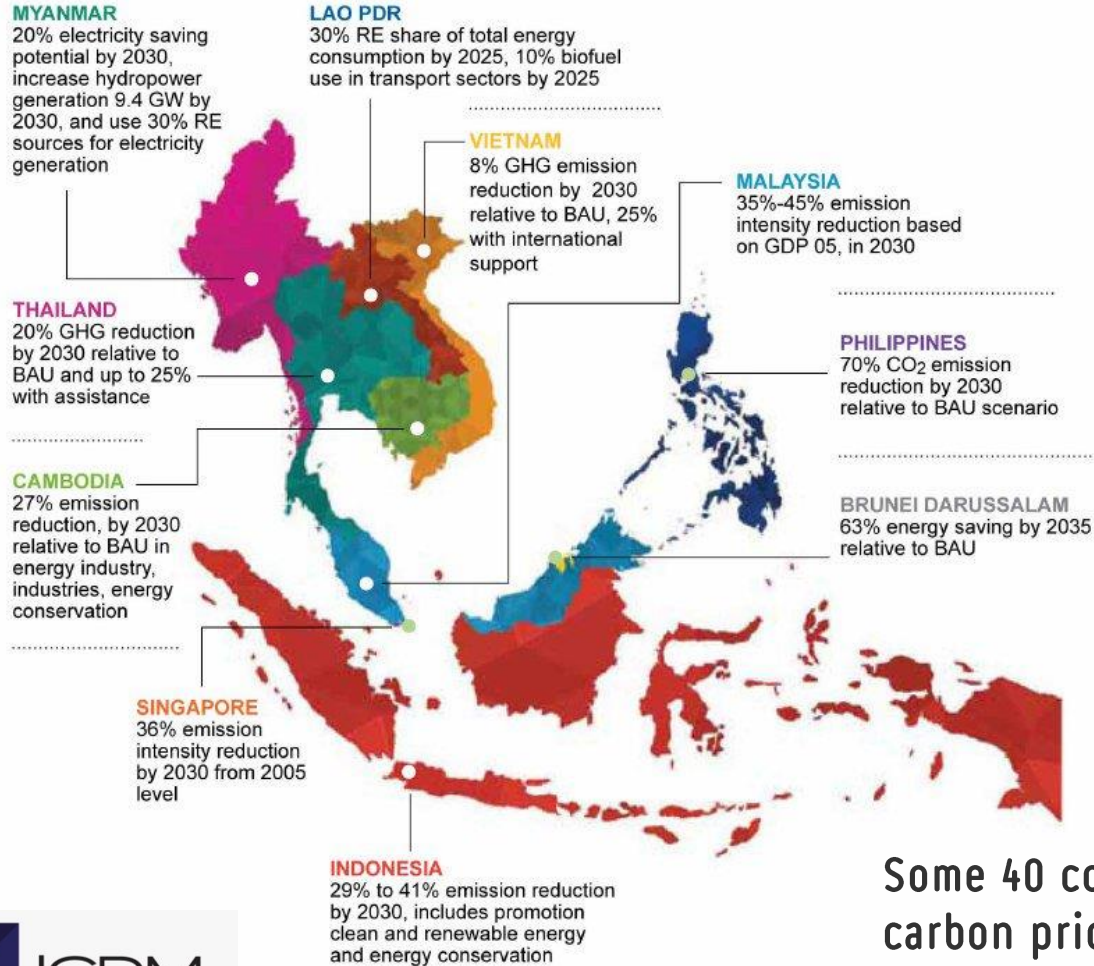
Efforts to **Green Existing Public Financial Flows** are beginning to take root. Specific areas - integrating climate resilience into public investment decisions, channelling finance away from high-carbon initiatives and ensuring national DFIs take on best practices.

4

New Investment Vehicles are on the rise. Through the Global Innovation Lab for Climate Finance and other initiatives, investment opportunities are focused in energy efficiency, water, land use, insurance and adaptation.

GOVERNMENTS ARE RESPONDING TO CLIMATE CHANGE

Figure 84. Energy Related Targets on AMS (I)NDC



Source: worldbank.org

Some 40 countries and more than 20 cities already use carbon pricing mechanisms, with more planning to implement in future.

Source: Asean Energy Outlook

INVESTORS ARE EXPECTING RESPONSIBLE INVESTMENT



Pensioenfonds
Zorg & Welzijn



AP3 Third Swedish National Pension Fund



12 of the world largest investors have committed to transition their investment portfolio to **net-zero** greenhouse gases emissions by 2050, consistent with a max temperature of 1.5 degree C above pre-industrial temperatures.



SUSTAINABILITY BENCHMARKING AND COMMITMENTS



Dow Jones Sustainability Indexes

Corporate Responsibility

Prime

rated by

oekom research



WORLD GREEN BUILDING COUNCIL



United Nations Global Compact



EURONEXT



FTSE4Good

ASSET OWNERS DISCLOSURE PROJECT



GRI Empowering Sustainable Decisions



G R E S B



TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES



DRIVING SUSTAINABLE ECONOMIES



Principles for Responsible Investment



REGIONAL TRENDS IN ADDRESSING CLIMATE CHANGE

SOUTHEAST ASIA AND THE ECONOMICS OF GLOBAL CLIMATE STABILIZATION

ADB

From 1990 to 2010, carbon dioxide (CO₂) emissions in Southeast Asia have grown more rapidly than in any other region in the world, making larger economic losses from climate change more likely.

FASTEST GROWTH IN CO₂ EMISSIONS IN THE WORLD

Increase in CO₂ emissions from 1990 to 2010: **NEARLY 5% EVERY YEAR**

90% OF REGIONAL GREENHOUSE GAS (GHG) EMISSIONS COME FROM:

- Indonesia
- Malaysia
- Philippines
- Thailand
- Viet Nam

DEFORESTATION AND LAND USE account for a majority of emissions

LOW IMPROVEMENTS IN ENERGY INTENSITY AND INCREASING RELIANCE ON FOSSIL FUELS are causing energy emissions to escalate

FUTURE SCENARIOS

BUSINESS-AS-USUAL vs **500 PPM**

Economic losses from climate change: **UP TO 11% OF GDP BY 2100**

CLIMATE CHANGE EFFECTS: hotter temperatures, more destructive storms, greater flooding, more droughts

BY SECTOR: Reduced agricultural productivity, Increased demand for energy and other resources, Collapse of coastal ecosystems, Loss of terrestrial forest cover and biodiversity, Increased risk of heat-related mortality and water- and vector-borne diseases, Losses in labor productivity

Costs of emissions mitigation drop to **2.5% - 3.5% OF GDP** over 2010-2050 if deforestation is effectively reduced

Co-benefits of changes to energy and land use would offset **40% - 50% OF POLICY COSTS**

Low-carbon energy technologies could reduce costs of emissions reductions by **MORE THAN 50%** by 2050

Investment needs for low-carbon energy sources could reach **OVER \$2 BILLION/YEAR** by the early 2020s

MITIGATION MEASURES

- AMBITIOUS MITIGATION IS AFFORDABLE**
- AVOID DEFORESTATION**
- ENERGY EFFICIENCY**
- ADVANCED ENERGY TECHNOLOGIES**

SOURCE: Asian Development Bank, 2015, Southeast Asia and the Economics of Global Climate Stabilization

TAKING ACTION

Contribute to global efforts to limit warming to 2°C

Zero net emissions by 2050

Manage risks and build resilience

Understand and manage risks and opportunities

A shared response to prepare for our future climate

1. UNDERSTANDING TASMANIA'S FUTURE CLIMATE
2. ADVANCING OUR RENEWABLE ENERGY CAPABILITY
3. REDUCING OUR TRANSPORT EMISSIONS
4. GROWING A CLIMATE-READY ECONOMY
5. BUILDING CLIMATE RESILIENCE
6. SUPPORTING COMMUNITY ACTION

KEY PRINCIPLES

- Use the best available science and information
- Work with businesses, the community and all levels of government
- Evaluate, monitor and report on progress
- Assess and respond to key risks and opportunities
- Share information to support action
- Complement national and international policies and initiatives

CLIMATE CHANGE ACTION IN TASMANIA, AUSTRALIA

CLIMATE CHANGE IN SINGAPORE

SINGAPORE'S CLIMATE	DAILY TEMPERATURE	FREQUENCY OF WARM DAYS & NIGHTS	RAINFALL	WIND	SEA LEVEL RISE
OBSERVED CHANGES	From 1948 to 2016, annual mean temperatures rose at an average rate of 0.25°C per decade	Since 1972, the number of warm days and nights has increased, and the number of cool nights has decreased	From 1980 to 2016, annual total rainfall rose at an average rate of 101mm per decade	General wind patterns influenced by northeast and southwest monsoons. There are no clear trends for wind speed as it is dependent on the environment	Between 1975 to 2009, the sea level in the Straits of Singapore rose at the rate of 1.2mm to 1.7mm per year
FUTURE CLIMATE PROJECTIONS	Daily mean temperatures are projected to increase by 1.4°C to 4.6°C	More warm days and warm nights for February to September throughout the 21st century	The contrast between the wet months (November to January) and dry months (February and June to September) is likely to be more pronounced. Intensity and frequency of heavy rainfall events is expected to increase as the world gets warmer	Singapore will continue to be influenced by the northeast and southwest monsoons with potential increase in wind speeds during northeast monsoon season	Sea levels are projected to rise by up to about 1 metre





About Us

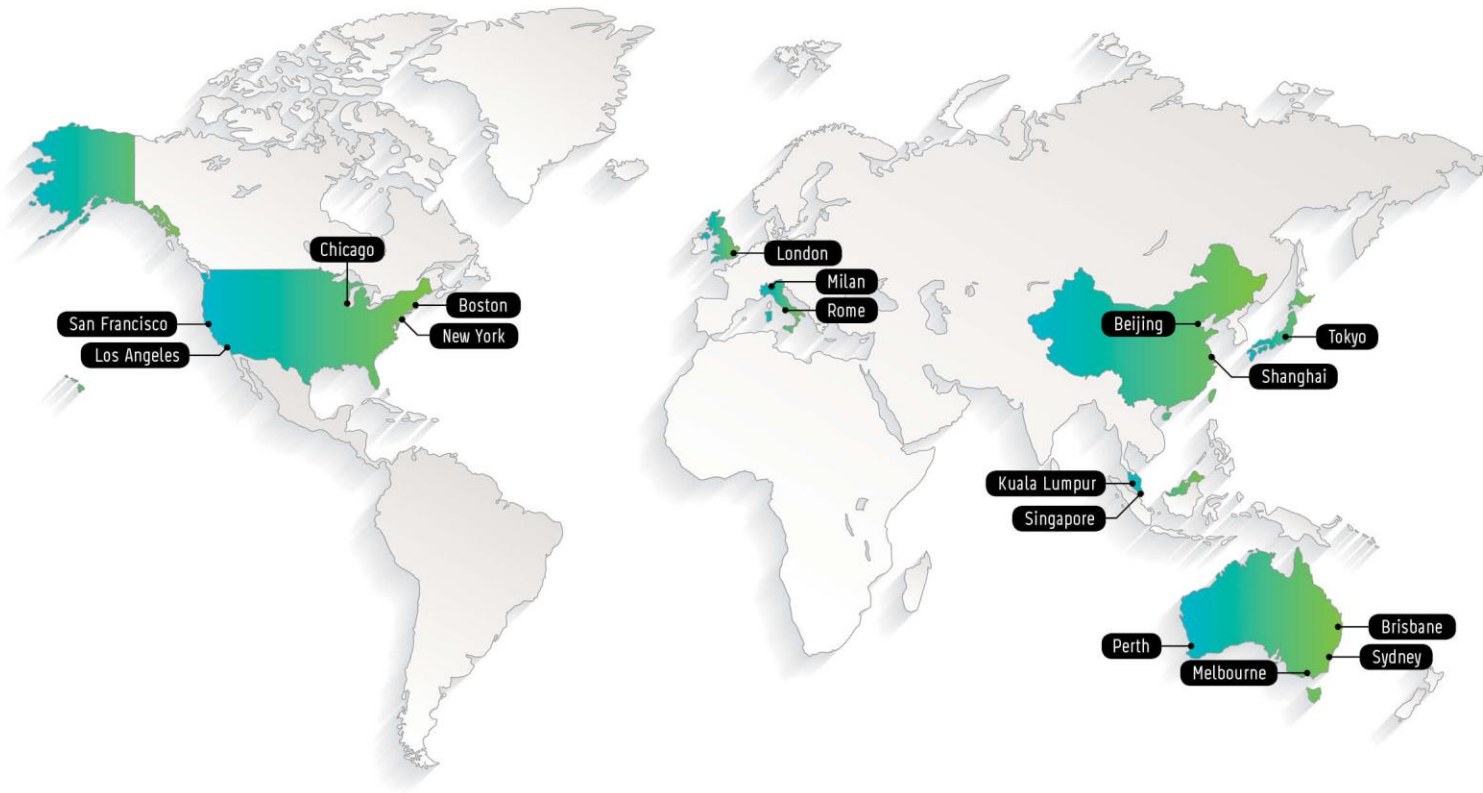


What we do

Shaping cities is what we do, and our urbanisation led strategy primarily focuses on major 'gateway cities' around the world.

What do we create?

- Urban city developments
- Healthcare facilities and hospitals
- Commercial buildings
- Shopping centres
- Residential communities
- Senior Living Communities
- Parklands and public spaces
- Highways, bridges, tunnels and train lines



Our international footprint

We currently operate in four key regions across eight countries

Gateway cities

Our aim is to have a presence in the cities we believe will be the most resilient and best performing around the world. We have identified 17 gateway cities for us to pursue our urbanisation projects. We currently operate in 15 gateway cities.

AMERICAS



• Southbank, Chicago (pictured)

• 30 Van Ness, San Francisco

EUROPE



• Elephant & Park, London (pictured)

• Milano Santa Giulia, Milan

ASIA



• The Lifestyle Quarter, Kuala Lumpur (pictured)

• Paya Lebar Quarter, Singapore

AUSTRALIA



• Melbourne Quarter, Melbourne (pictured)

• Darling Square, Sydney

Our vision

Our vision is to create the best places

OUR APPROACH

The Lendlease strategy delivers on our vision to create the best places by leveraging our integrated business model in key gateway cities.



Building for the future: leaving something behind

'Companies must start justifying their worth to society, with greater emphasis placed on environmental and social impact rather than straight economics.'

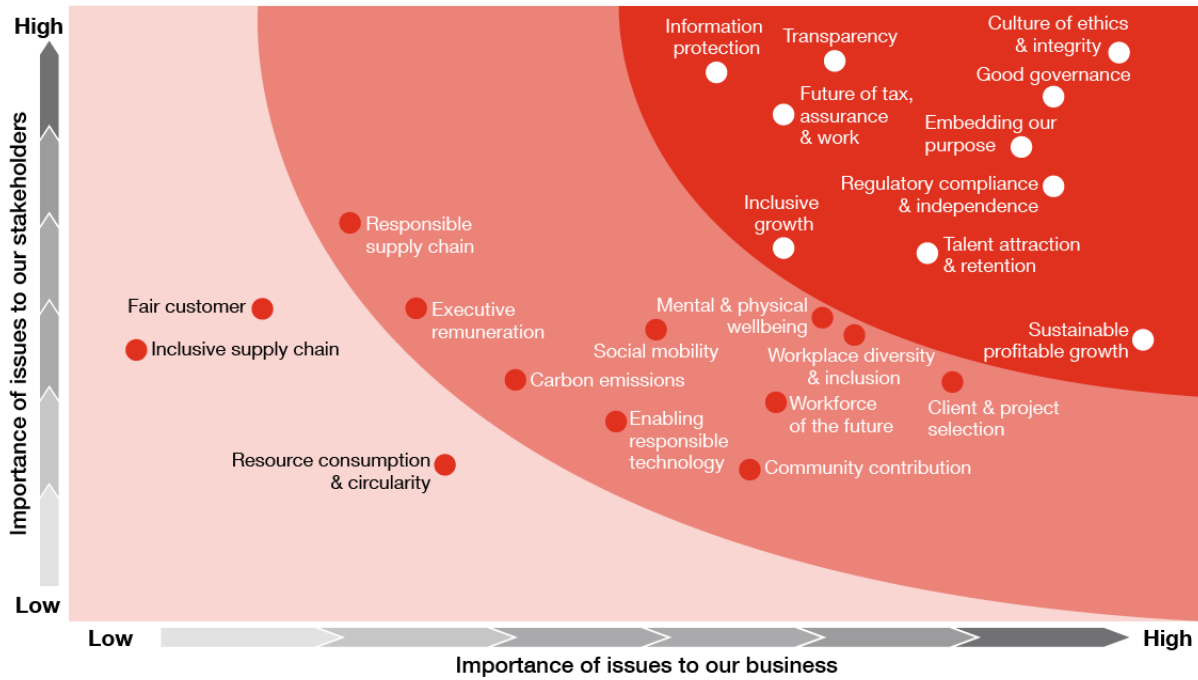
Dick Dusseldorp 1973





Integrating Sustainability

FOCUS ON WHAT MATTERS TO YOUR ORGANISATION



WHAT MATTERS TO LENDLEASE

VISION TO CREATE THE BEST PLACES

SUSTAINABILITY
IMPERATIVES



How we create long term values across our products and supply chain; build capacity and expertise through skills, training and employment; and be innovative and responsible in our use of materials and resources.



How we plan and create connected and inclusive places and buildings that are adaptive and resilient to climate change; are socially inclusive, valued by communities who live there



How we connect built and natural environments to promote community and environmental health and wellbeing; create buildings and places that do no harm

ENVIRONMENTAL
FOCUS



RESOURCES AND
MATERIALS



CLIMATE
ACTION



NATURE AND
POLLUTION

SOCIAL
FOCUS



ECONOMIC
PROSPERITY



COMMUNITY
INCLUSION



WELLBEING

OUR RESPONSIBLE INVESTMENT PATHWAY



Formally evaluate the impacts and risks of ESG issues



Develop and implement sustainability strategies



Measure and report on ESG criteria



Use green rating tools to benchmark and disclose ESG performance



Engage and share knowledge with stakeholders on ESG issues



Collaborate with industry bodies, governments and like-minded stakeholders.



Policy Statement Responsible Property Investment Investment Management

In its capacity as a fund manager, Lendlease has a duty to act in the interests of its investment partners. In this fiduciary and stewardship role, we believe that environmental, social and governance (ESG) factors form an integral part of the management process of our property portfolios.

Lendlease has four guiding principles that support its strategy – Safety, Sustainability, Diversity & Inclusion, and Customer Focus.

It also has a company-wide sustainability governance framework that provides discipline and focus for our efforts and activities on the matters most important to us and our stakeholders. At the core of this framework remains the recognition that people are central to our business activities. The governance framework addresses environment, social and economic aspects, and defines long term targets and commitments. We acknowledge that achieving safety, sustainability and diversity outcomes will deliver long term value for our investment partners, the environment and our communities, and we utilise this framework in defining our approach to responsible property investment.

Our continued focus will be to respond to the dynamic risks and opportunities associated with climate change. We continue to advance roadmaps to support the transition towards a low carbon economy.

In line with our signatory commitment under the United Nations supported Principles for Responsible Investment (PRI), we are committed to creating value for all stakeholders in everything we do by delivering positive economic, environmental and social outcomes whilst operating in an environment that is Incident & Injury Free.

We commit to the following actions:

1. Formally evaluate the impacts and risks of ESG issues in our investment and management decision making;
2. Develop and implement sustainability strategies for each of our funds that are guided by Lendlease’s operating principles and key sustainability focus areas;
3. Measure and report on ESG criteria;
4. Use green rating tools and labels, where they exist, to benchmark and disclose the ESG performance of our assets and portfolios;
5. Engage and share knowledge with stakeholders on ESG issues related to responsible property investment practices, promoting the PRI;
6. Collaborate with industry bodies, government agencies and like-minded stakeholders on tools, labels and incentives which promote sustainable ESG performance in the property and investment industries.

We will report progress annually against our actions.

Josh McHutchison
Managing Director, Australia
Investment Management
Lendlease

Victoria Quinlan
Managing Director, Europe
Investment Management
Lendlease

Kelvin Chow
Managing Director, Asia
Investment Management
Lendlease

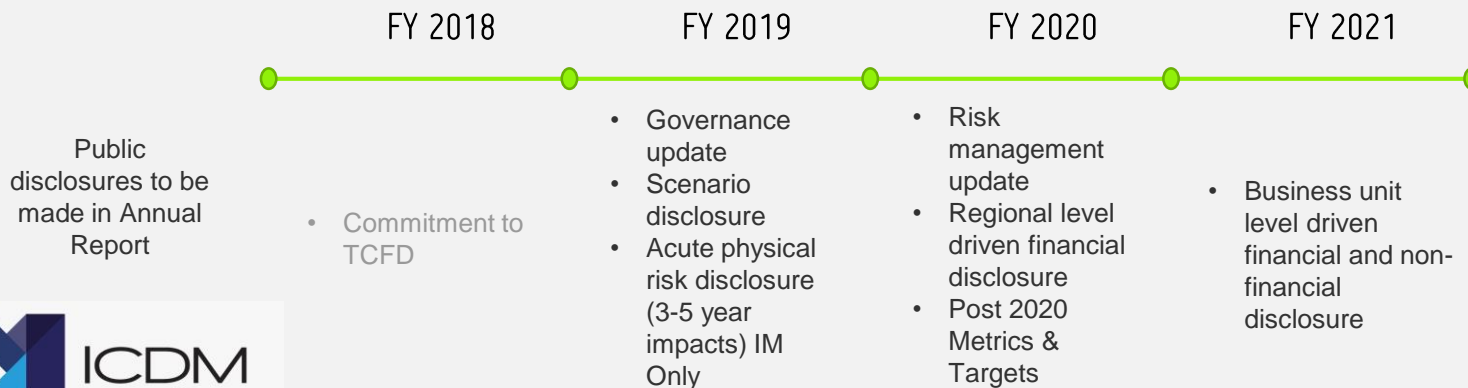
As at September 2018

INTEGRATING CLIMATE RISK

1. In May 2018 our board committed to disclosing under TCFD, and we disclosed our commitment in the FY18 Annual Report.
2. The TCFD framework has four key recommended areas of disclosure – **Governance, Strategy, Risk Management and Metrics & Targets.**
3. TCFD requires us to annually disclose the material financial impacts of risks and opportunities associated with future climate scenarios.

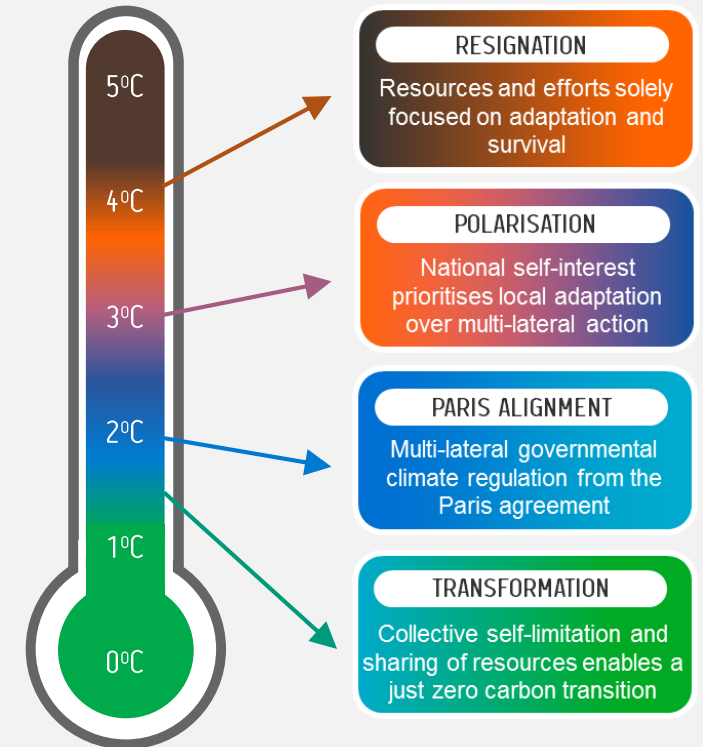
EMERGING DISCLOSURE TIMELINE

The emerging timeline of disclosure is typical and expected. It is designed to suit our business planning process, current strategy and capacity.




LENDLEASE CLIMATE SCENARIOS


TCFD requires a 2°C global warming scenario, with recommendations for one above 2°C and one scenario below 2°C. The scenarios created for Lendlease consider our capability, capacity and influence as a global integrated property company.




Scenario planning is used to test and reframe the business strategies to build resiliency in the company to Climate-related risks and opportunities using the climate scenarios.

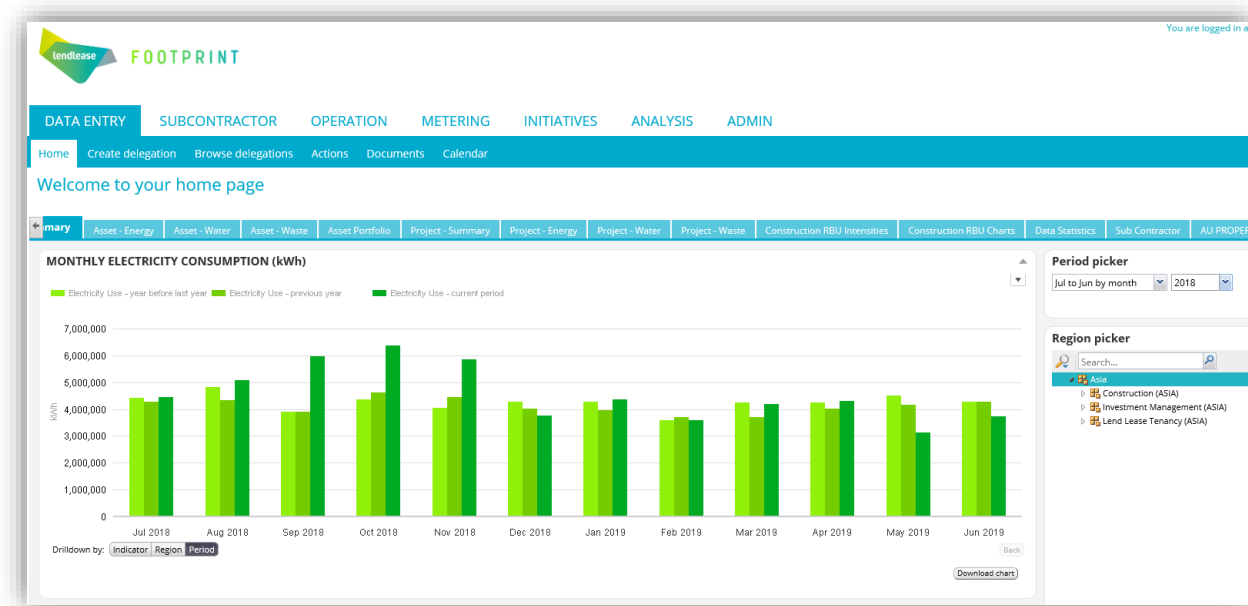
TARGETS & MEASURING PERFORMANCES

- 

20% cleaner energy & more efficient use of energy by 2020
- 

20% reduction in waste to landfill by 2020
- 

20% more efficient use of water by 2020



Measured by intensity

A flexible measure of efficiency, as opposed to gross totals, that allows for growth in outputs relating to the rate of either consumption (energy, water) or the rate of production (emissions, waste), e.g. kWh / m2.

Baseline year

FY14.

Reporting Boundary

The 2020 targets apply to all energy, water and waste data for activities under Lendlease **Operational Control**. An **Equity Share interest** is applied solely for assets where Lendlease does not have 100% interest.



STAKEHOLDER ENGAGEMENT & COMMUNICATION

DailyPulse

WORKDAY LEARNING SUPPORTS CLIMATE WEEK

Climate Week with Workday Learning

Are you interested in learning more about climate change? Do you know your carbon economy from your emissions trading schemes? Workday Learning can help with some great digital titles.

Friday, September 27, 2019

Carbon Economy.

In a world dealing with the realities of climate change, the economics of carbon have become a critical business issue. Explore how emissions trading schemes, including the National Greenhouse and Energy Reporting Scheme (NGERS) work in our industry. [Register now.](#)

Sustainability Strategies.

Lendlease Annual Report 2019

As the world reinvents itself

DailyPulse

30 Awards & Nominations for Shopping Malls

Outstanding sustainability performance by our malls

313@somerset, Jem and Parkway Parade have been recognised for their notable contributions

Wednesday, September 25, 2019

The National Environment Agency (NEA) has announced the winners of the 30th National Awards for Shopping Malls. Lendlease malls 313@somerset and Parkway Parade were both second time winners – both second time winners – award.

3R initiatives at our malls include shopper education through events, recycling bins, and initiatives to reduce waste sent for incineration. We are committed to our vision to create the best places to live, work and play.

OUR APPROACH

Dick Dusseldorp, our founder, was an early pioneer of corporate responsibility, with a vision that was guided by two simple principles – doing the right thing and leaving a legacy for future generations. Inspired still by this ethos today, we use our sustainability framework to align our legacy with where our impact is greatest.

Steve McCann, Group Chief Executive Officer and Managing Director

"At Lendlease this is what sustainability has always been about - getting it right for people. Which means getting it right for the environment, for society and for the economy."

OUR SUSTAINABILITY FRAMEWORK

So that our efforts will count, our Sustainability Framework focuses where the unique impact of our work is greatest.

Recognising sustainability is about more than energy, water and waste, our Framework centres on achieving three core imperatives supported by environmental and social focus areas.

Informed by consultation with our investors, clients, employees and stakeholders, this Framework was reviewed and updated in 2019.

paya lebar quarter

SUSTAINABILITY PLAN

OCTOBER 2016

Home > Company > Sustainability > Climate-related Financial Disclosure

2050 FUTURE SCENARIOS FOR TCFD

In 2018 Lendlease became a supporter of the Task Force for Climate-related Financial Disclosures recommendations. As part of this process, Lendlease has committed to disclosing our climate-related risks and opportunities under the TCFD framework.

BARANGAROO SOUTH 2018 SUSTAINABILITY REPORT

IMAGINE NOW

lendlease

LENDLEASE PROPERTY FUND NAMED WORLD'S MOST SUSTAINABLE FOR FIFTH TIME

27 September 2019

Lendlease's Australian Prime Property Fund (APPF) Commercial has achieved the number one ranking from 964 global participants in the annual GRESB real estate assessment.

LENDLEASE BUILDING AUSTRALIA IS NOW A CARBON NEUTRAL CONSTRUCTOR

27 September 2019

Our Australian Building business has become one of Australia's first carbon neutral constructors.

CLIMATE RESILIENCE AT CLIPPERSHIP WHARF

27 September 2019

Responding to future climate change scenarios, the ground plane at the resilient Clippership Wharf development in East Boston is elevated, accounting for future sea level rise.

LENDLEASE FUNDS MANAGEMENT RECEIVES TOP MARKS FROM THE WORLD'S LEADING PROPONENT OF RESPONSIBLE INVESTMENT

03 September 2019

LENDLEASE ENGINEERING: PAVING SUSTAINABLY AND DIVERTING 1 MILLION GLASS BOTTLES FROM LOCAL LANDFILL.

03 September 2019

PROMOTING MENTAL HEALTH IN THE AMERICAS REGION

03 September 2019

Lendlease Americas has proactively worked to understand the wide-ranging impacts of mental

SUSTAINABILITY & LENDLEASE INVESTMENT MANAGEMENT



- In 2007, Lendlease was the first global property investment managers to become signatory to the Principles for Responsible Investment (PRI).
- There are **2370 signatories** that participated in the PRI survey representing **USD \$ 86.3 trillion in AUM** – demonstrating global growth in both sustainable investing and sustainability being both the right thing to do for business and community.
- Lendlease achieved the following results in 2019:
 - An A+ rating for Strategy and Governance module
 - An A+ rating for sector module in Property



SUSTAINABILITY & LENDLEASE INVESTMENT MANAGEMENT



Lendlease managed funds took top spots once again in the 2019 GRESB Rankings.

Everyone has a role to play in solving climate change. Lendlease is committed to leading the evolution of our industry. Our proven track record in sustainability is a direct result of our focus on leaving a profound and lasting impact on society and the environment, to create the best places for people today and generations to come.

Global Real Estate Sustainability Benchmark (GRESB) Rankings

GRESB is used by the industry to benchmark Environmental, Social and Governance (ESG) performance for the real estate sector globally. Over 1,000 entities and 100,000 properties, representing US\$4.1 trillion in global assets under management took part in the 2019 GRESB Survey.

lendlease.com



GRESB Rankings



- First Globally**
APPF Commercial (Australian Prime Property Fund Commercial)
- First in Global Retail Sector (listed and unlisted)**
APPF Retail (Australian Prime Property Fund Retail)
- First in the Global Senior Homes Category**
Lendlease Retirement Living Trust
- First in Asia Retail Category**
ARIF 1 (Asian Retail Investment Fund 1)
- Top 10 in Asia Retail Category**
ARIF 2 (Asian Retail Investment Fund 2)



Sustainability in Our Developments



LENDLEASE BUILDING AUSTRALIA IS NOW A CARBON NEUTRAL CONSTRUCTOR

Four step pathway of our decarbonisation strategy

1. Refreshing our site sustainability standards to focus on initiatives that directly reduce emissions
2. Offsetting 100% of any remaining emissions from construction activity across all building sites in Australia
3. Partnering with clients and industry groups to lead the update of low embodied carbon materials
4. Supporting innovation in low carbon manufacturing techniques

We have invested in a portfolio of certified carbon reduction projects supporting The Great Barrier Reef



Sydney's First Cross Laminated Timber Building

INTERNATIONAL HOUSE, SYDNEY

lendlease

BUILDING INSIGHTS

International House Sydney

- 40% reduction in embodied carbon. In terms of greenhouse gas emissions, this reduction is equivalent to removing 500 cars of the road for a year
- A reduction in the building's Global Warming Potential by 91%. Revealed via Life Cycle Assessment.
- By attributing monetary value to environmental impacts such as resource use and pollution, the natural capital of the building was assessed. The 'TruCost model*' revealed the 'true cost' of IHS was a third that of a standard commercial building.

WORLD FIRST:
The invention of Glulam/LVL (Laminated Veneer Lumber) beams. Developed with the University of Stuttgart, this technology has enabled Lendlease to penetrate the primary beams with the mechanical, electrical and fire services necessary in a commercial building.



IHS was one third of the 'true cost' of a standard commercial building: US\$7.71m²p.a. for IHS compared to US \$24.76m²p.a. for a typical building.

LENDLEASE URBAN REGENERATION DEVELOPMENTS



**Barangaroo South,
Sydney**



**Elephant Park,
London**



**Paya Lebar Quarter,
Singapore**



**Tun Razak Exchange,
Kuala Lumpur**



LENDLEASE BARANGAROO SOUTH, SYDNEY

BARANGAROO SOUTH : MAPPED TO THE SUSTAINABLE DEVELOPMENT GOALS 2030

ENGAGED COMMUNITIES ENVIRONMENT

COMMUNITY DEVELOPMENT

50 social programs at Barangaroo South before 2025.
In excess of \$40 million public art and culture fund, provided via developer contributions, for site wide delivery of projects:

- Building integrated art plan
- Temporary cultural activations
- Integrated public art on hoardings
- Range and diversity of art and culture projects

Supporting wider Lendlease Elevate Reconciliation Action Plan including:

- Community engagement
- Supply chain
- Employment and training
- Partnerships
- Reconciliation Action Week and NAIDOC Week initiatives

TRAINING, SKILLS AND EMPLOYMENT

Skillings of training of construction workers via the Barangaroo Skills Exchange:

- \$78.5M in socio-economic benefits realised
- 20% of contractors required to be apprentices
- Over 11,000 workers received training to date

Over 12,500 registrations for the Discover Barangaroo e-learning portal for high school children.

Eco-concierge dedicated to educating, engaging and supporting retailers, tenants and occupants in achieving sustainability targets in operation.

RESPONSIBLE INVESTMENT

External Ratings:

- 1 of 18 C40 City's, Clinton Climate Initiative Climate Positive Developments
- Certified World Best Practice Plan
- 6 Star Green Star Communities Rating
- All commercial buildings targeting 6 Star Green Star rating
- All residential buildings achieve at least 5 Star Green Star Rating
- 15 Voluntary Green Star Retail Certifications, with 11 achieving 6 Stars

Partnerships:

- BSCP
- TAFENSW
- Department of Education
- UNSW
- Tribal Warriors
- Sydney Theatre Company
- Social enterprises include: OzHarvest, Reverse Garbage, Pyrmont Cares

RESILIENCE AND ADAPTATION

Climate Change and Resilience Action Plan, 2015.
Raised ground plane, in line with the IPCC 2100 predicted sea level rise of 0.9 meters.
Stormwater upgrades were based on modelling of 100-year interval storm events and allowed contingency for 50% blockage.

NATURE

50% of Barangaroo South site is public open space.
Green Travel Plan: Encourage and support environmentally friendly and active transport modes via:

- Education, initiatives
- Infrastructure provision: ferry wharves, Wynyard Walk, overpass bridges, end of trip facilities, over 1,100 bike racks

Ecological and Biodiversity Plans:

- Green roofs
- Green links
- Street tree planting
- Inclusion of endemic species

Innovative site remediation strategies undertaken to restore land previously contaminated due to former gasworks and fill materials used in land reclamation.
Improving environmental management, energy efficiency and cost saving.

WATER

Net water positive capability.
Recycled Water Treatment Plant:

- Replaces potable water use for all non-potable uses e.g. irrigation, toilet flushing
- Capable of exporting more recycled water than potable water on site

District Cooling Plant thermally regulates all buildings via a Harbour Heat Rejection System channelling sea water through chillers to reject heat.
In lieu of typical cooling towers, the use of sea water for heat rejection saves up to 100 megalitres of water per year.
On site rainwater tank capture capacity amasses to 188,500L.
Stormwater Treatment Plant exceeds National Best Practice Standards: greater than 80% reduction in suspended solids and 45% reduction in nitrogen and phosphorous.
Stormwater catchment area extends beyond the Barangaroo South boundary.

HEALTH AND WELLBEING

Healthy Living Action Plan, 2017
Infrastructure Provision to support active transport including:

- End of Trip Facilities – 22 change rooms, 130 showers, over 1,400 lockers and 1,120 bike racks
- Pedestrian access: Wynyard Walk, restoration of 2.4km of waterfront
- Ferry wharves
- Equal access, mobility and CPTED principles
- Design for Dignity Guidelines

Indoor Environment Quality:

- 100% outdoor air ventilation system
- High performance façade, maximises daylight, thermal comfort and views
- Use of low VOC and formaldehyde emitting products
- High level acoustic comfort and privacy provided where necessary
- WELL Shell and Core Platinum Rating targeted
- Commitment to achieve 5 Star NABERS Indoor Environment year on year

DIVERSITY AND CULTURE

Accessibility: Design for Dignity Guidelines
Indigenous Engagement:

- Over 230 Indigenous workers involved in the project
- Indigenous Participation Plan 2016
- Barangaroo South Community Partnership

Barangaroo South Community Partnership Initiatives:

- Indigenous Engagement
- Career Fit, and annual Indigenous youth careers day
- Swedish Dads photo exhibition

INNOVATION

60,000m² central shared basement serving entire precincts' commercial, retail and residential needs, providing significant efficiencies of scale.
Australia's first commercial building construct of mass engineered timber: International House Sydney.
World first invention of glulam/laminated veneer lumber (LVL) beams.
Material choice and use revealed the 'true cos of the building to be a third of that of a standard commercial building.
Integration of sustainability commitments into leases, supplier agreements and subcontracts to achieve the project vision.

MATERIALS AND SUPPLY CHAIN

Greater than 20% reduction of buildings embodied carbon.
Lifecycle Assessments completed for the top 20 materials used in construction.
Supplier Engagement Strategy in place outlining: environmental and social sustainability considerations.
Supply Chain Examples:

- 23% reduction in the carbon intensity of reinforced steel for construction
- Carbon neutral certified access floors
- Dematerialisation of tower façades
- Onsite batch plant supply of concrete, saving over 60,000 truck movements
- Up to 40% cement replacement used for concrete components
- Greater than 95% of timber is AFS and FSC certified

WASTE

97% diversion rate of construction waste from landfill.
80% diversion rate of operational waste from landfill.
Waste reduction initiatives:

- Up to 20 different waste streams
- 100% of takeaway packaging made from compostable materials
- Plastic bag free
- 2,000 tonnes of waste diverted from landfill in first 22 months of operations
- ~2,000L of cooking oil recycled weekly into biodiesel for trucks

ENERGY

Australia's first large scale carbon neutral precinct:

- Community Carbon Fund integrated into leases - to assist in funding carbon neutrality

Onsite Renewable Energy:

- Solar PV line the rooftops, currently with 800KW of capacity
- Carbon Abatement Technology in research

Energy Efficiency: targeting 75% reduction in energy use compared to BAU:

- Passive Design Features such as, 100% LED lighting, smart floor plate design and shading, use of chilled beams for thermal control of buildings, smart lifts that generate energy on the journey down
- 5 Star NABERS Energy Rating targeted for the buildings





BARANGAROO

IS SYDNEY'S LARGEST URBAN REGENERATION PROJECT SINCE THE 2000 OLYMPICS.

7.8 HECTARES IN SIZE

OVER 50% OF THE WHOLE BARANGAROO SITE IS PUBLIC SPACE.

22 HECTARES BARANGAROO PRECINCT

BARANGAROO SOUTH CONTAINS **490,000 sq m** MIXED USE GROSS FLOOR AREA.

TRANSPORT

A COMMITMENT HAS BEEN MADE FOR A DIRECT PEDESTRIAN LINK TO TRAINS AND BUSES AT WHARF 4 AND THE CENTRAL CBD. ALSO PROPOSED ARE FERRY WHARFS, NEW BUS ROUTES, CYCLEWAYS AND PARKING FOR BIKES.

COMMUNITY AND PUBLIC FACILITIES

CULTURAL FACILITIES, A WATERFRONT SQUARE, HARBOUR COVE, WATERFRONT PROMENADE & PLAZAS.

100% WATERFRONT ACCESSIBLE TO THE PUBLIC.

RETAIL, FOOD & BEVERAGE: **80-100** LIFESTYLE AND BEAUTIFUL STORES, CAFES, RESTAURANTS, BARS AND CUTE SHOPS.

RESIDENTIAL: **800-1000** APARTMENTS, MIDDLE-LOW AND HIGH RISE.

HOTEL: **LANDMARK INTERNATIONAL HOTEL** WITH DAY-SPA, BUSINESS CENTRE, BARS, RESTAURANTS AND THE JAIL.

TOTAL VALUE \$6 OVER AUD BILLION.

KEY SUSTAINABILITY TARGETS

1/18 PROJECTS GLOBALLY

BARANGAROO IS ONE OF ONLY 18 PROJECTS GLOBALLY TO BE PART OF THE C40 CITIES-CLINTON CLIMATE INITIATIVE'S CLIMATE POSITIVE DEVELOPMENT PROGRAM.

0 NET OPERATIONAL CARBON EMISSIONS (COVERING ENERGY, WASTE AND COMMUTER CARBON EMISSIONS).

AUSTRALIA'S FIRST LARGE SCALE CARBON NEUTRAL COMMUNITY.

TARGETING **20% REDUCTION** IN EMBODIED CARBON COMPARED WITH STANDARD CONSTRUCTION PRACTICES.

6,000 sq m OF SOLAR PANELS ON-SITE.

ENERGY REQUIRED FOR PUBLIC SPACE & RECYCLED WATER TREATMENT PLANT

100% OFFSET BY ON-SITE RENEWABLES.

TARGETING **ZERO** NET WASTE TO LANDFILL BY 2020.

80% DIVERSION OF OPERATIONAL WASTE AWAY FROM LANDFILL FROM DAY ONE.

TARGETING **97%** DIVERSION OF CONSTRUCTION WASTE AWAY FROM LANDFILL.

100,000 CONSTRUCTION WORKERS EMPLOYED ON-SITE.

23,000 A NEW HOME FOR OFFICE WORKERS.

500+ INDIVIDUALS WORKERS INVOLVED IN THE PROJECT.

90,000L RAINWATER TANK IN EACH COMMERCIAL TOWER TO CAPTURE AND RECYCLE RAINWATER.

1 MILLION LITRES OF RECYCLED WATER A DAY TO THE COMPLETED PRECINCT AND SURROUNDING SUBURBS.

CAPABLE OF BEING WATER POSITIVE.

ON-SITE BLACKWATER TREATMENT PLANT CAPABLE OF SUPPLYING

≈ \$1.5 BILLION OF ESTIMATED SOCIAL VALUE ADDED BY THE DEVELOPMENT.



ELEPHANT CASTLE, LONDON

Working in partnership with Southwark Council to deliver a £ 2.3 billion regeneration project in London. The regeneration is split across three sites: Elephant Park, Trafalgar Place and One The Elephant.

- 3,000 new home (25% affordable housing)
- 6,000 new jobs (5,000 in construction and 1,000 in completed development)
- UK's first Climate Positive development in 2025
- Two acre new park in eleven acre public space – the largest new green space in central London in 70 years
- Space for over 50 new shops, restaurants and cafes, including affordable retail space
- Over 50,000 sq.ft workspace
- Southwark Construction Skills Centre, providing skills training in partnership with Southwark Council
- Over 1,200 new trees planted in Zone 1 London
- Over 3,000 new cycle spaces
- Energy Hub, providing net-zero carbon heat and hot water to all homes at Elephant Park





PAYA LEBAL QUARTER, SINGAPORE

SUSTAINABILITY HIGHLIGHTS

- ACTIVE**
 - Enabling healthier lifestyles
 - Reducing burden on Singapore's infrastructure
- GREEN**
 - Having more trees and increasing biodiversity
 - Targeting to achieve Singapore's first Green Mark for Non-Residential Buildings 2015 Platinum rating
- ENGAGED**
 - Actively engaging with local community
 - Celebrating diversity and inclusiveness



Paya Lebar Quarter is targeting to be the first mixed use Green Mark for Non-Residential Buildings 2015 Platinum rating in Singapore



30%
STORMWATER DISCHARGE RATE
 Reduced rate through ABC Waters design in plaza

TREE POSITIVE



More trees planted than there were previously on site

ENERGY REDUCTION



Savings in operational energy use

ENHANCED BIODIVERSITY



Increase in diversity of flora and fauna

20%
REDUCTION IN URBAN HEAT ISLAND EFFECT



TARGETING ZERO NET WASTE TO LANDFILL BY 2020 THROUGH THE FOLLOWING PATHWAYS:



Dedicated space for cultural and heritage celebrations

80%
 Diversion of operational waste away from landfill

90%
 Diversion of construction waste away from landfill



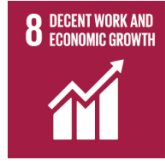


THE EXCHANGE TRX, KUALA LUMPUR



THE EXCHANGE TRX
SUSTAINABILITY FRAMEWORK

UN SDG GOALS



LENDLEASE FRAMEWORK



THE EXCHANGE TRX

VIBRANT COMMUNITIES

Celebrating diverse urban community, whilst empowering the local economy

CITY RESILIENCE

Future proofing against changing environmental and digital landscape

GREEN HEART

A sustainable urban oasis that redefines healthy living

THANK YOU

