SET Awards 2022

INDORAMA VENTURES

6 September 2022

คำถาม

1) การปรับตัวขององค์กรท่ามกลางแรงกดดันทางภาวะเศรษฐกิจในปัจจุบันเพื่อเพิ่มความสามารถในการแข่งขันและความอยู่รอดทางธุรกิจ โดยระบุประเด็นท้าทายต่อธุรกิจไม่เกิน 2 ประเด็น พร้อมทั้งแผนกลยุทธ์และแนวทางบริหารจัดการประเด็นดังกล่าวของบริษัท

2) การตอบสนองต่อสถานการณ์การเปลี่ยนแปลงสภาพภูมิอากาศที่นับวันจะยิ่งทวีความรุนแรงขึ้น

โดยแสดงถึง

(1) ความเสี่ยงหรือโอกาสจากการเปลี่ยนแปลงสภาพภูมิอากาศ

(2) การบูรณาการในนโยบาย กลยุทธ์ เป้าหมาย และแผนงาน/มาตรการตามบริบทขององค์กร

(3) ความคืบหน้าหรือผลลัพธ์จากการบริหารจัดการที่เกี่ยวข้อง ทั้งในเชิงคุณภาพและปริมาณ

3) บทบาทของบริษัทในการสร้างการเปลี่ยนแปลงเชิงบวกต่อสังคมและ/หรือสิ่งแวดล้อมผ่านกระบวนการทางธุรกิจหรือศักยภาพของบริษัท โดยแสดงถึง

(1) การวางกลยุทธ์และเป้าหมายที่มุ่งสร้างการเปลี่ยนแปลงในระดับอุตสาหกรรมหรือในสังคมวงกว้าง

(2) แนวทางการดำเนินงานที่ขับเคลื่อนให้เกิดการเปลี่ยนแปลงดังกล่าว

(3) การเปลี่ยนแปลงที่เกิดขึ้นจริงต่อสังคมและ/หรือสิ่งแวดล้อม รวมทั้งผลลัพธ์ที่บริษัทได้รับจากการดำเนินงานดังกล่าว ทั้งในเชิงคุณภาพและปริมาณ

***เพื่อให้คณะกรรมการพิจารณารางวัลฯ เข้าใจข้อมูลเบื้องต้นของบริษัท โปรดแสดงข้อมูลใน Appendix (ไม่เกิน 5 Slide) เช่น สรุปข้อมูลการประกอบธุรกิจ กลยุทธ์และแนวทางการดำเนินงานด้านความยั่งยืน เป็นต้น

IVL's overview

145 Sites

6 Continents

35 Countries

25,760 Total Workforce (end of 2021)

US$ **14,629 m** Total Revenue (end of 2021)

BUSINESS SEGMENTS

COMBINED PET

#1 PET globally
Recycling leadership

The only integrated player in Europe and fully integrated in North America
Packaging leadership in emerging markets
Global leader in PIA

FIBERS

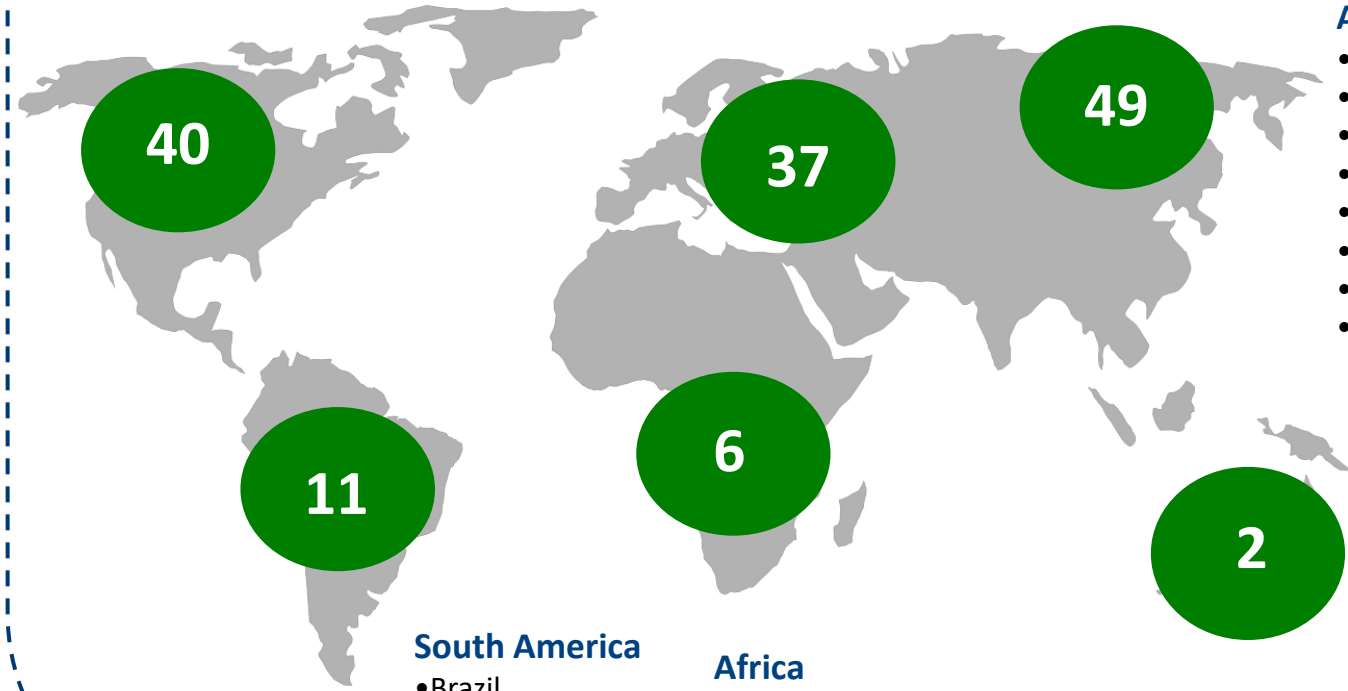
#1 Staple fiber in ASEAN
#2 in Bicomponent fiber
#2 in Automotive safety & tire

INTEGRATED OXIDES AND DERIVATIVES (IOD)

#1 Non-ionic surfactants in Americas
#1 EO in Americas
#1 Americas' fabric & home care ingredients provider
#2 Ethoxylation company globally

North America
- Canada
- Mexico
- The United States

Europe
- Austria
- Bulgaria
- Czech Republic
- Denmark
- France
- Germany
- Ireland
- Italy
- Lithuania
- Luxembourg
- Poland
- Portugal
- Russia
- Slovakia
- Spain
- The Netherlands
- Turkey
- United Kingdom



Asia
- China
- India
- Indonesia
- Israel
- Myanmar
- Philippines
- Thailand
- Vietnam

South America
- Brazil
- Uruguay

Africa
- Egypt
- Ghana
- Nigeria

Oceania
- Australia

การปรับตัวขององค์กรท่ามกลางแรงกดดันทางภาวะเศรษฐกิจในปัจจุบันเพื่อเพิ่มความสามารถในการแข่งขันและความอยู่รอดทางธุรกิจ โดยระบุประเด็นท้าทายต่อธุรกิจไม่เกิน 2 ประเด็น พร้อมทั้งแผนกลยุทธ์และแนวทางบริหารจัดการประเด็นดังกล่าวของบริษัท

Competitive advantage / adaptability for business operations (including business strategy and framework)
The company will have to share 2 business challenges along with the company's strategic plans and management guidelines.

1 Net Zero Carbon

Risks	Negative Impacts
• **Reputational** : High GHG emission / polluter	• Loss brand image & stakeholder trust / License to Operate
• **Operational** : Flood / drought / wildfire	• Operation interruption / Logistics interruption
• **Financial** : Cost of good sold	• Less sales and profit
• **Regulation** : carbon tax / ETS / CBAM	• Trade Barrier / Higher tax paid

Opportunities	Positive Impacts
• **Operational** : Operational Eco-efficiency Improvement / product development	• Higher efficiency & lower emissions / Low carbon products development / cost saving
• **Financial** : new products / premium products / sustainable finance	• Revenue generation / less carbon tax paid / higher profit / gains funds for new investment and expansion
• **Reputational** : High GHG emission /	• Good brand image and Lower Brand image and stakeholder Trust / License to Operate / Sustainable Leadership

Business competitiveness

1.1 Operational Standardization
- Decarbonization strategies
- Net Zero ambitions & targets
- SOPs / Internal Carbon Pricing
- SBTi / Supply Chain GHG scope 3

1.2 Process Innovation
- Green projects
- New technologies

1.3 Product Innovation
- Product Life Cycle Assessment (LCA)
- Low carbon products
- Bio-based feedstock
- Recycled products

Sustainability Ambitions Towards Net Zero Carbon

GCNT FORUM 2021 Thailand's Climate Leadership Summit | A NEW ERA OF ACCELERATED ACTIONS

Committed to achieving Net Zero Carbon by 2050-2070

Committed to SBTi *(May 2022)*

Sustainability CAPEX
US$ 2 billion by 2025
(Cumulative 2020-2025)
US$ 7 billion by 2030
(Cumulative 2020-2030)

Recycling Commitment
Post-consumer PET bale input per year
0.75 million tons by 2025
1.5 million tons by 2030 (A)
Post-consumer PET Bottles recycled per year
50 billion by 2025
100 billion by 2030 (A)

Energy*
Reduction in energy intensity
5% by 2025
15% by 2030

GHG*
Reduction in combined GHG (Scope 1&2) intensity
10% by 2025
30% by 2030

Renewable Electricity
10% by 2025
25% by 2030

Water*
Reduction in water intensity
10% by 2025
20% by 2030

Recycling Education
Educating **1,000,000 consumers** around the world on recycling by 2030

Waste
90% waste diverted from landfill by 2025

Circular Economy
Integrating the circular economy concept into IVL's operations
Partnering with organizations **to intensify** our contributions to **the circular economy**

Circular Feedstocks
Bio-based feedstock : 16% against whole IVL feedstock
Recycled feedstock (rPET) (B) **: 10%** against whole IVL feedstock, and **23%** against PET Feedstock by 2030

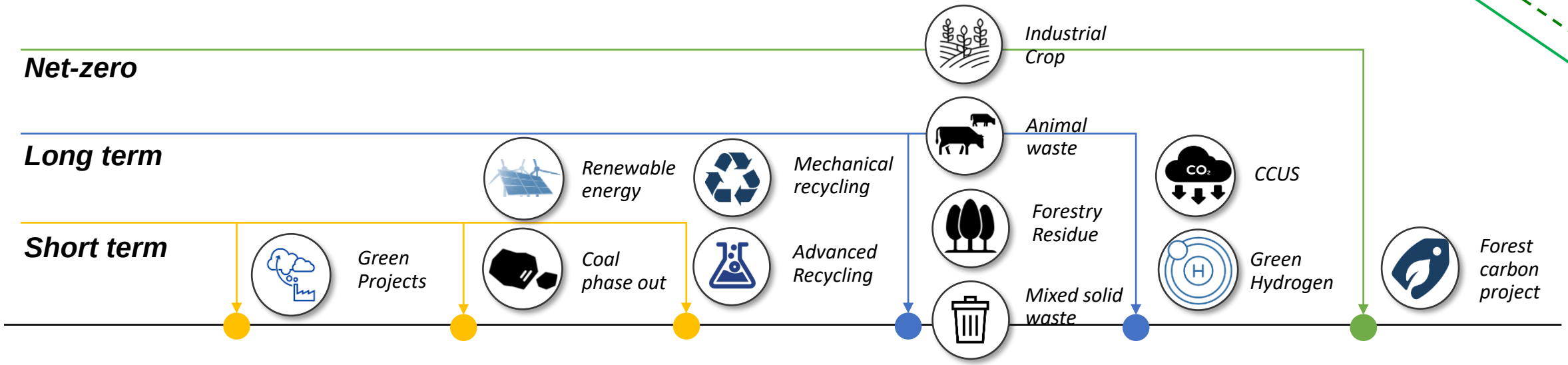
Remark:
IVL Vision 2030 recycling ambition :
(A) 3.13 million tons and 200 billion bottles per year
(B) 21% against whole IVL feedstock and 48% against PET feedstock

* *Base year 2020*

INDORAMA VENTURES

Decarbonization Strategies

Committed towards Net Zero; prioritization of our decarbonization strategies



Invest in operational & energy efficiencies to reduce GHG emissions, Energy & Water consumption

Decarbonize IVL's energy consumption via on-site & off-site renewable energy and phasing out from coal

Invest in and expand recycling facilities to address plastic pollution and reduce lifecycle carbon emissions

Replacing fossil fuel-based feedstock with circular (bio-based and recycled) feedstock

Exploring opportunities for Carbon Capture Utilization & Storage (CCUS) and Green Hydrogen

Invest in carbon offsetting projects from forest preservation, restoration, anti-deforestation

*Note: * Aspirational projects only*

Green projects:
Improving Eco-Efficiency to reduce Carbon Footprint

Green Projects in 2021 → Reduction of **185,132 ton of CO_2e**

Propylene Purification Tower Steam Reduction, IVOX Port Neches

- ✓ The energy reduction of **324,090 GJ/year**
- ✓ Emissions reduction of **478 metric tons of CO_2**
- ✓ Total operational savings of **US$ 2.6 million**

Shifting to Inert Gas in place of Greenhouse Gas

- ✓ Overall energy consumption was reduced by **30%**, resulting in the reduction of **81.1 tCO_2e/year**.
- ✓ Cost-saving of **US$ 1.5 million per year**

Pilot heat-recovery project reducing carbon emissions at Performance Fibers (Kaiping)

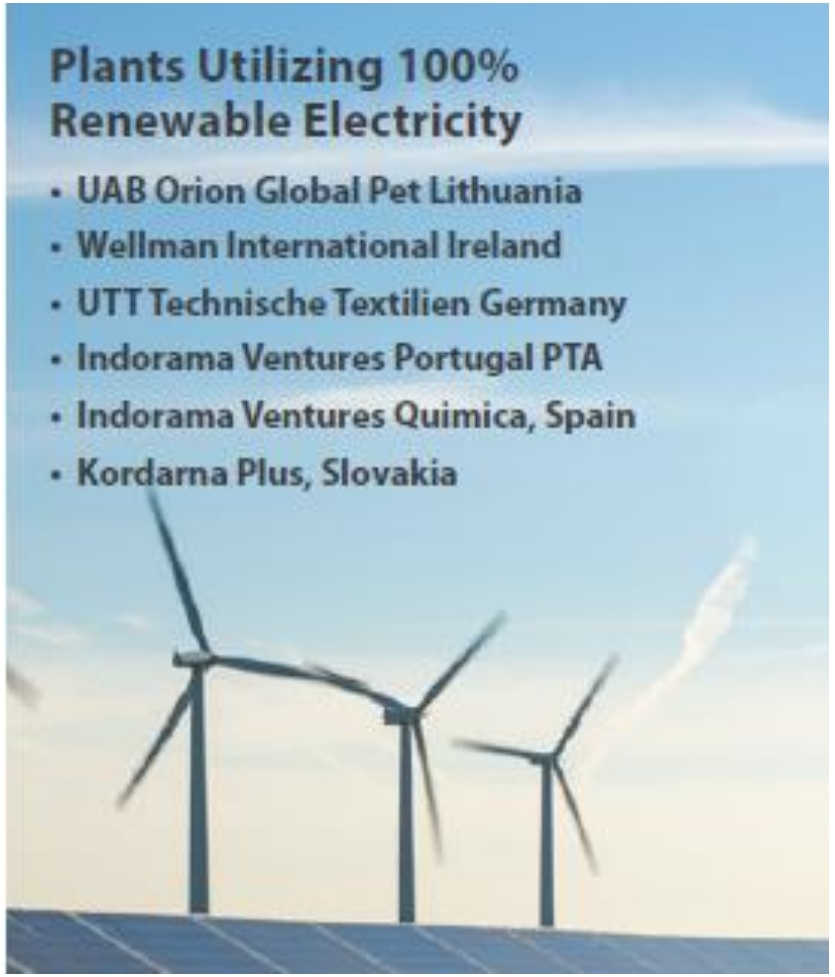
The project will reduce

- ✓ **CO_2 emissions of 5,000 tons**
- ✓ **Annual saving of US$ 1.8 million**

Renewables in our operations

Offsite Renewable Electricity

Renewable electricity procurement via global VPPAs can provide additional opportunities to reduce GHG emissions.



2021

Our combined use of
2,803,365 GJ
of renewable Energy

Saved over
143,175 tCO_2e

Onsite Renewable Energy: Solar installation projects

PT. Indorama PolyPet Indonesia
- 1.2 megawatts peak
- save 1,100 tons CO_2 equivalent

Floating Solar Panels – IPI Nakhon Pathom
- 5,250 KWp
- reduce 3,474 tCO_2e

Indorama Petrochem Limited (PTA)
- 4,500 megawatt-hours (MWh/year)
- reduce 1,800 metric tons per year, equivalent to 81,820 trees.

2 Plastic Waste

Risks	Negative Impacts
• **Reputational** : Polluter / Destroy the environment	• Loss brand image & stakeholder trust / Ban
• **Financial** : No PET plastic consumption	• Less sales and profit / business closed
• **Regulation** : Plastic tax / waste management	• Trade Barrier / Higher tax paid
• **Operational** : reduce the production	• Not cost competitiveness

Opportunities	Positive Impacts
• **Operational** : new circular business	• Maximize resources / ensure recycling capacity / responsible production and consumption
• **Financial** : new products development / sustainable finance	• Revenue generation / cost saving / less carbon tax paid / higher profit / gains funds for new investment
• **Reputational** : Innovative and sustainable company / responsible citizenship	• Good brand image and Lower Brand image and stakeholder Trust / License to Operate / Sustainable Leadership

Business competitiveness

2.1 Circular Business
- ➢ PET Circularity
- ➢ Recycling facilities investment
- ➢ Collaboration with industry memberships & stakeholders

2.2 Product Innovation
- ➢ Recycled products
- ➢ PPEs Coverall

2.3 Recycling Education
- ➢ Recycling Education
  - Material development
  - Training to society

PET Circularity

INDORAMA VENTURES
CIRCULAR ECONOMY

- Building the infrastructure, the world needs to provide a circular economy
- Increasing use of circular feedstocks while reducing fossil-based feedstocks
- Collaborating with customers on demand for sustainable materials
- Circular product design and innovations

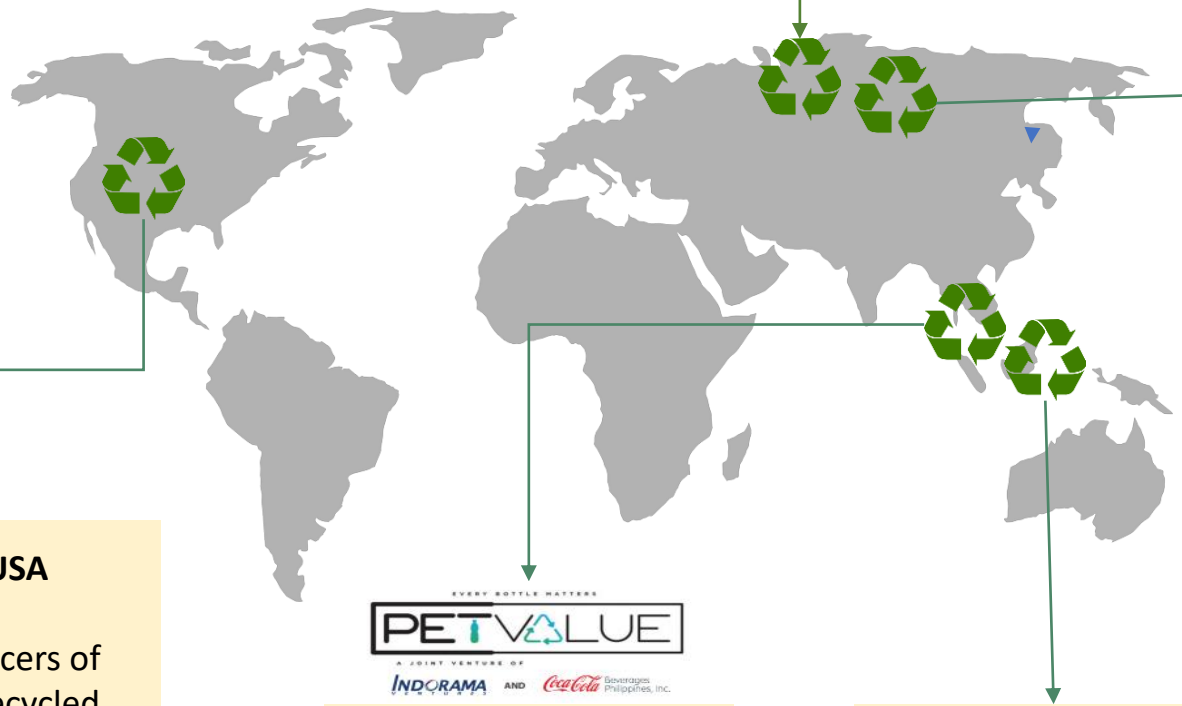
Recycling strategies and Recycling Commitment

- Strengthening our Global Recycling Capability
- Ensuring a Fully Closed Loop
- Contributing to a Circular Economy

Circular Business

Recycling Facilities Investment

UCY, Czech Republic
We will recycle about **1.12 billion additional post-consumer PET bottles** in the Czech Republic every year by 2025.



Carbios, France
First-of-a-kind manufacturing plant for fully bio-recycled PET, this facility will have a processing capacity of **50,000 tons of PET waste per year.**

CarbonLite, USA
- One of the largest producers of food-grade recycled pellets (rPET)
- **Recycling capacity of 3 billion PET bottles per year**

PETValue, the Philippines
the largest state-of-the-art, bottle-to-bottle recycling facility in the Philippines. The plant's projected capacity is **30,000 MT/year of flakes**.

Kawarang, Indonesia
Set to launch in 2023, this facility will have an **annual recycling capacity of 1.92 billion PET bottles**

Going forward with new technologies

- CARBIOS – Enzymatic recycling (Hydrolysis)
- ioniqa – Depolymerization (Glycolysis)
- sabic – Depolymerization (Glycolysis/Hydrolysis)
- GARBO – Depolymerization (Glycolysis)

Circular Business

Innovative Product Development

Life Cycle Assessment

In 2021, **46% global Life Cycle Assessments (LCA) coverage** in compliance with ISO 14040/44:2006. Furthermore, we started a number of initiatives to offer lower GHG products through carbon offsets

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Low Carbon Products

Deja™
Carbon Neutral Pellet

Locally sourced material

Vertical integration

Water transport

south pole
Verified carbon offsets

Climate Neutral Product
2021
by South Pole

Bio-based Products

Remark: Biodegradation after storage under composting condition accordance to EN 14046:2003; Source: ITV Denkendorf

Bio-based PET

- Polyester tire cord based on bio-based raw materials
- Contribute to customer's product sustainability content

Viscord® CS4
Natural Cellulose for Run-flat Tire

Recycled Products

deja™

high-performance products made with up to 100% recycled PET.

Newlife™ :
a premium recycled polyester yarns, made from post-consumption plastic bottles collected in northern Italy

Trevira CS eco brand is available for fabrics that consist of at least 50 % recycled content.

Circular Business

Innovative Product Development

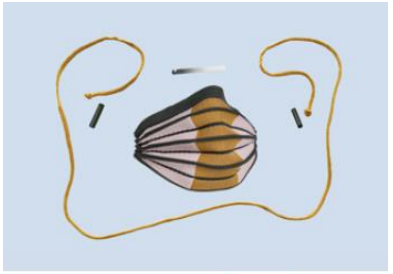
Oxyclear® Barrier PET
Polyclear® EBM PET
reimagine PET to replace plastics that have unfavorable recyclability characteristics

Enka® Nylon BIO
Bio-based high-tenacity polyamide yarn
- **70 % bio-based**
- CO2 emission balance is almost zero

Diolen®
- Based on PLA
- **100% bio-based**
- Biodegrades under industrial composting conditions

NewLife™
a premium recycled polyester yarns, made from post-consumption plastic bottles collected in northern Italy
The production process is **100% Made in Italy and 100% traceable.**

Breathair® – Sustainable Comfort, a custom-fit solution made by **recycled materials** for mattresses, chairs and other furniture



deja INDORAMA VENTURES STOLL DyeCoo

The Easy Mask
- Constructed with our Deja™ performance yarn
- DyeCoo's CO_2 technology **does not use any water**
- Stoll's seamless knitting technology

Deja™ products

MADE TO BE REMADE AGAIN
By asking more of PET and less of the planet, we recognize PET as a valuable resource that is helping close the loop in a circular economy.

Reduce Carbon emissions

Reduce the amount of waste that goes to landfill

Achieve sustainability targets through design collaborations

Collaboration with various associations

IVL Endorses the Ellen MacArthur Foundation's call for EPR Packaging

We jointly sponsored the "Sustainability Leaders Council", which are driven to create **a sustainability action plan for Asian governments and the private sector**. The Council's virtual summit was arranged under the theme of **"Unlocking Sustainable Plastics in Asia"**.

Collaboration with GPAP and WEF On Investor Toolkits For Plastic Waste

IVL is proud to be part of the New Plastics Economy Global Commitment, reporting from mid-year to mid-year.

Enhancing public awareness through our activities

Public-Private collaboration to turn PET plastic waste into medical equipment

- Collaborated with **14 organizations** and **1,597 stakeholders**
- **8,000 PPE suits** and **1,000 bedding sets**
- Made from **9.35 tons of recycled post-consumer PET bottles**.

ประกาศกระทรวงสาธารณสุข

IVL has worked with various organizations to encourage the amendment of a regulation that will allow the use of recycled PET in food and beverage packaging in Thailand. Our efforts have paid off in this year. The Thai Ministry of Public Health (MOPH) published Plastic Food Packaging Standards, which include **the approval of plastic containers made from recycled plastic pellets.**

IVL supports GEPP Rewards application

- Launched **GEPP Rewards application**
- Disposed recyclable waste to **earn points and redeem for rewards**

The Circular Innovation Challenge program

- To **raise public awareness** about the need to reduce waste in Thailand

IVL in Thailand brings unused plastic pallets to protect the environment

- To **add value to unused plastic pallets** for the benefit of the community & society.

Enhancing public awareness through recycling education

A new partnership with the Yunus Foundation to create recycling education materials for a global audience

Deliverables:

- **19 content packages** at different education levels
- **250,000 people** reached within 2022

Mexico

Poland

The Netherlands

Thailand

Thailand's Recycling Education (Jan – Aug 2022)

- **3,823** People Received Training
- **2,533** Students
- **327** Teachers
- **963** Public and Community People
- **173** Schools and Universities
- **5** Organizations
- **4** Virtual Training Sessions
- **19** Classroom Training Sessions
- **84** Teaching Hours

2030 Target

Educating **1,000,000** consumers around the world about recycling

Progress against 2030 target

53,585 People (Cumulative 2018-2021)

- **54** Recycling Articles
- **270** Downloads of Recycling Education Materials
- **1,428** Views and Downloads of Recycling Education VDOs

Outcomes

- **632,250** Bottles Collected
- Bottles Returned to Recycling Factory **14,050** kg.

2

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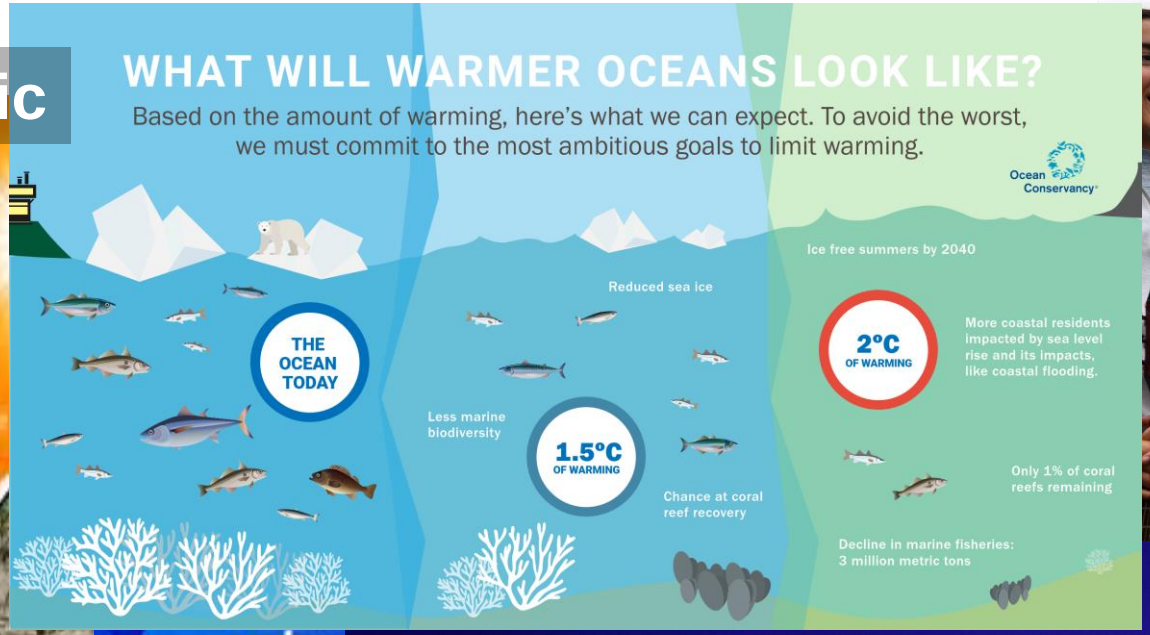
Climate-related activities
(1) Including risks and opportunities,
(2) Strategic business integration, framework, goals,
(3) Progress, qualitative & quantitative measurements

Climate Change

Catastrophic



Social Power

Commitment from global leaders

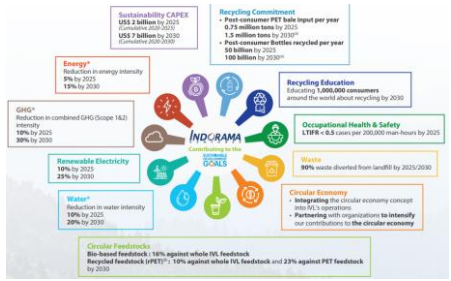
Climate Change

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

- Sustainability and Risk Management Committee (SRMC)
- ESG Council
- Decarbonization Committee
- Business Heads and Manufacturing Heads

- Decarbonization Strategies
- Recycling Strategy

- Climate-related Risks
  - Physical risks : Technology/ Policy & legal/ Market/ Reputation
  - Transition risks : Acute and Chronic
- Climate-related Opportunities
  - Energy Source
  - Resource Efficiency
  - Resiliency
  - Products & Services
  - Markets



- Sustainability Ambitions
- SBTi
- Net Zero Carbon

INDORAMA VENTURES

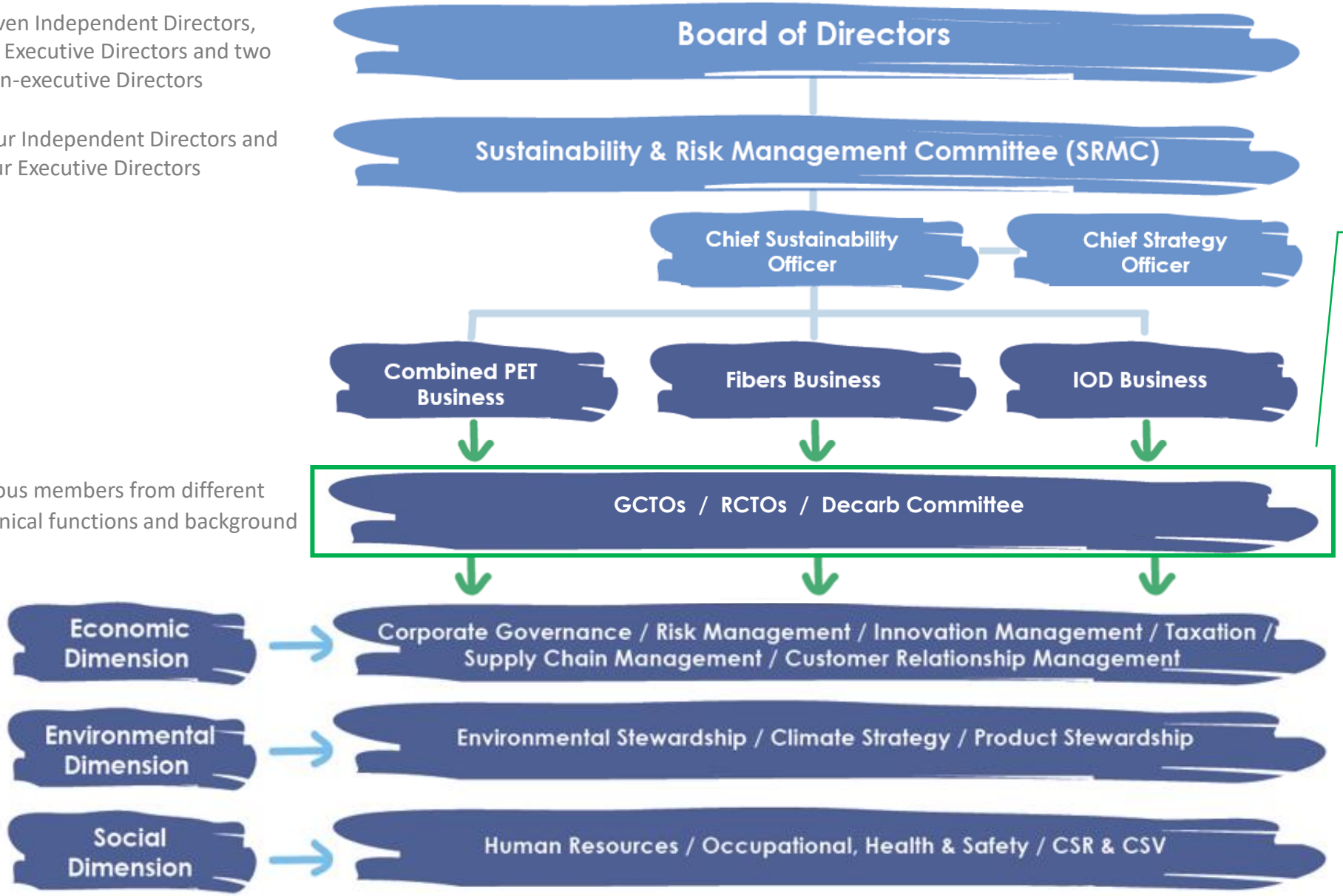
- TCFD Supporter
  First chemical company in Thailand
- First TCFD Report in Thailand

IVL's Water Risk Assessment Summary Report 2021

Governing Structure

Seven Independent Directors, Six Executive Directors and two Non-executive Directors

Four Independent Directors and four Executive Directors



Various members from different technical functions and background

-- Evaluate current sources of GHG emissions across all businesses
-- Develop decarbonization roadmap and strategy (e.g. green projects, RE, coal phase-out, CCUS technologies including CAPEX/OPEX)
-- Steer on activity projects developments and efforts where lagging or needed
-- Conduct gap analysis on efficiency and identify improvement areas
-- Enable decarbonization target achievement

Aug 2021

"Decarbonization SOPs" was introduced to accelerate the impact of sustainability projects on the environment

Science-Based Targets

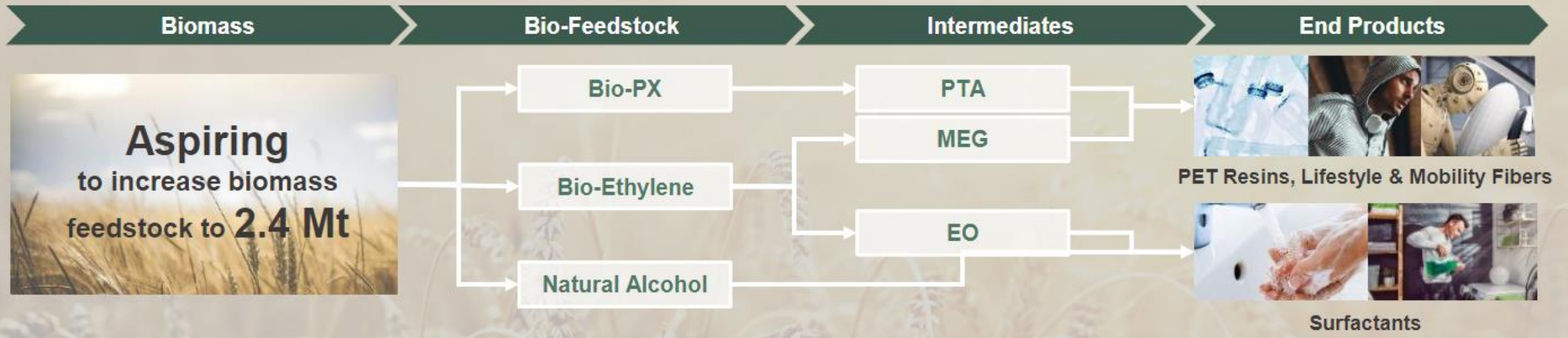
With the current plan, IVL will be able to reduce its GHG emission intensity by 38% by 2030

2020 GHG intensity	Business Growth	Green Project	Coal Consumption	CCUS	Renewable Energy	2030E GHG intensity	SBT requirement
	Reaching 22.2 Mtpa* overall production by 2030	Equipment & Operational efficiency Waste heat utilization, water reduction	Coal phase out in Aromatics, PET & Fibers sites in Asia	~1 MtCO2 GHG reduction expected from projects in Port Neches	VPPA in US VPPA in EU	Total reduction: 38%	≥42% reduction by 2030 @ 1.5C

IVL commitment in May 2022

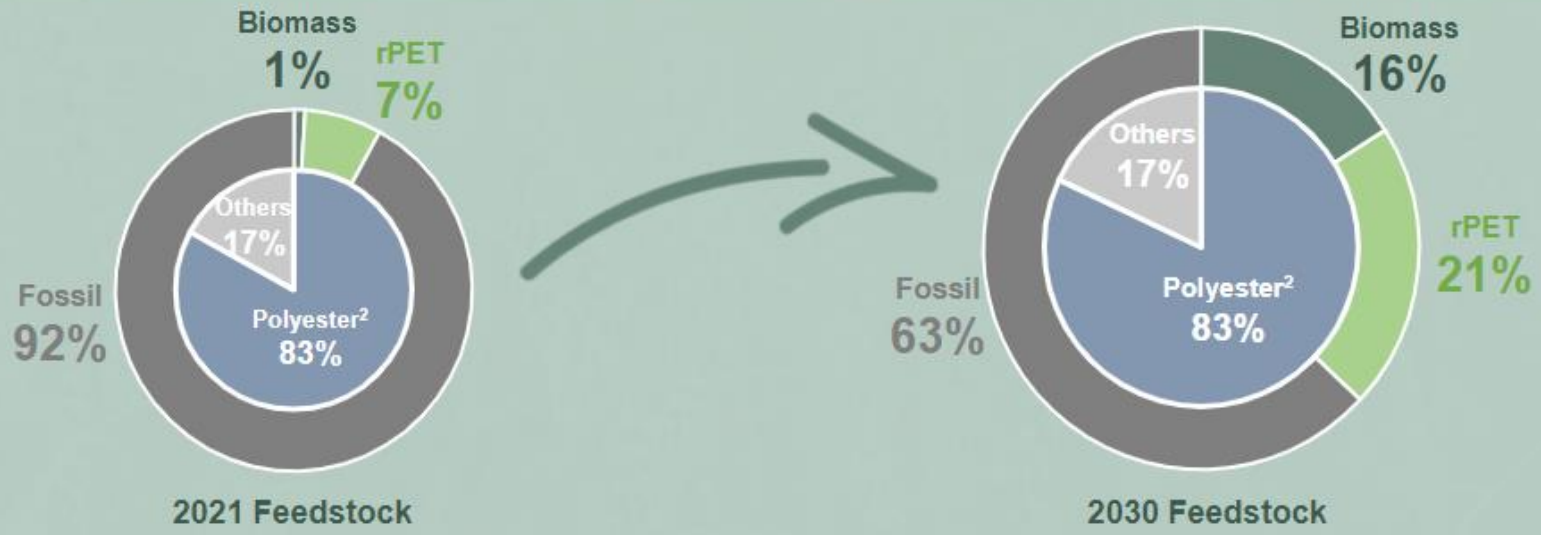
Approval by SBTi within 2 years

Decarbonizing our products through biomass



Biomass…

- abundant, renewable, sustainable
- enables 80% or more reduction in life-cycle emission
- valorises waste material



Note: (1) Including investment in natural alcohol plant which is a part of Oxiteno acquisition (2) Polyester feedstock consisting of xylenes for PTA and ethylene for MEG

Green Projects: Improving Eco-Efficiency to reduce Carbon Footprint

TYPES OF GREEN PROJECTS

EQUIPMENT EFFICIENCY
- *Rotary press. Filter instead of Centrifuge for PTA Separation,*
- *GT Project*

OPERATIONAL EFFICIENCY
- *Site FP*
- *APC for Process Control*
- *Dipping M/C productivity & efficiency gains by changing to gas heating*

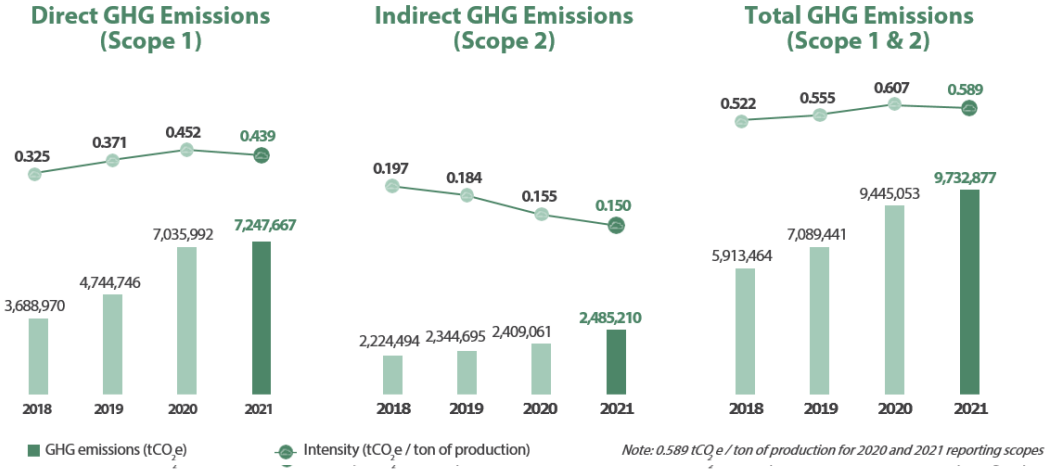
WASTE HEAT UTILIZATION
- *Waste Heat Recovery from Process & Stacks – Various segments*
- *MVR (Steam Compressor)*

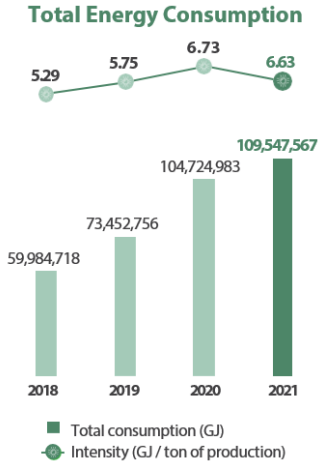
ON-SITE RENEWABLE POWER
- *Solar Power Plants at Thailand sites on BOOT basis*

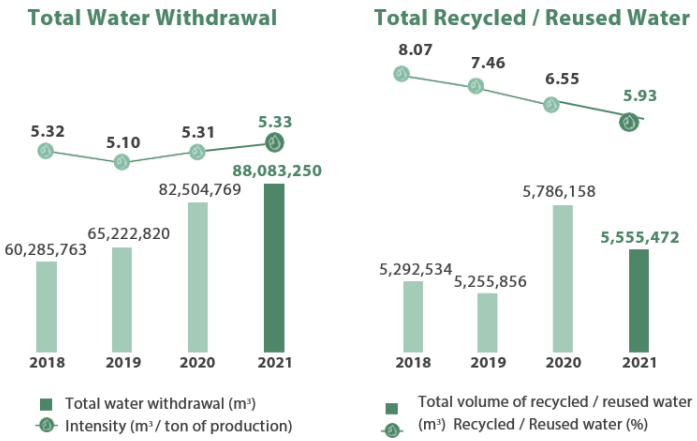
WATER REDUCTION
- *Waste Water Recycling;*
- *Process Improvement*

Key Sustainability Impact

GHG saving | *Energy saving* | *Water saving*







Renewable Electricity: diverting to clean energy to reduce scope 2 emission

With current scenario, IVL is on track to 2030 RE target

* Base year 2020

2025 Target **10%** renewable electricity consumption

2030 Target **25%** renewable electricity consumption

TYPE OF ENGAGEMENT

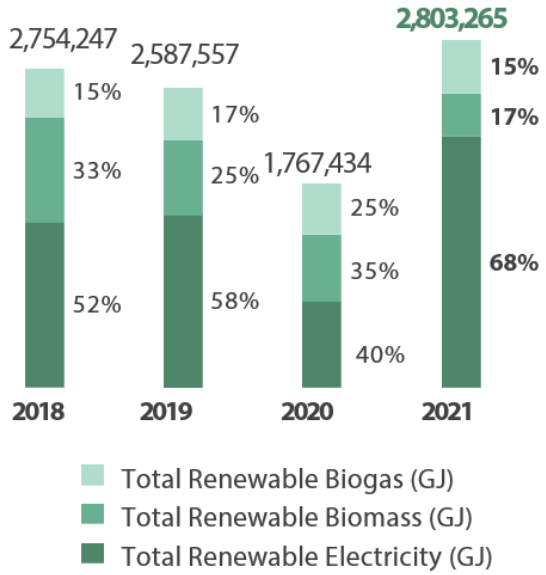
On-site renewable energy development: *Installation of On-site Solar*

Unbundle REC purchase: *Buying standalone certificates to neutralize emissions*

Renewable energy PPA: *Engage in long-term offtake agreement of RE via PPAs*

Virtual Power Purchase Agreement (2026): *Engage in Virtual Power Purchase Agreement (VPPA)*

Total Renewable Energy Consumption



2021 Highlights

67% ISO 50001:2011/ ISO 50001:2018 certification compared with 2020 reporting scope

6 sites consume 100% renewable electricity

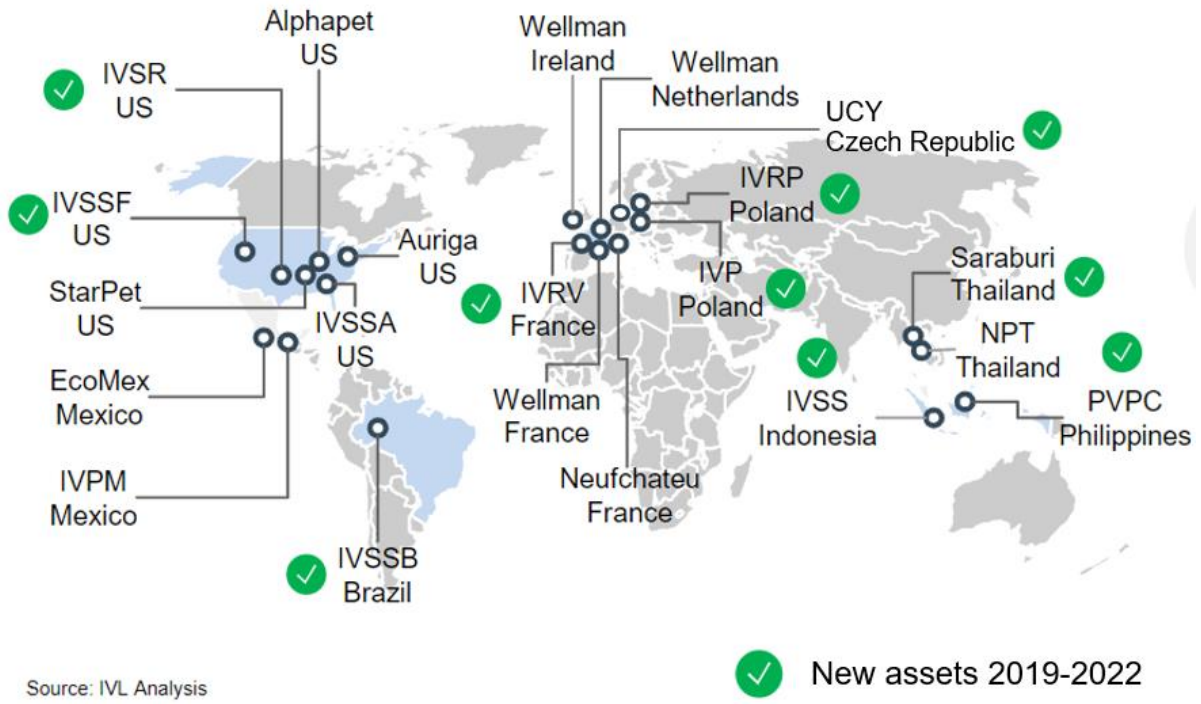
11 contracts signed for **35** MWp solar rooftop

Progress against 2025 targets

7.5% renewable electricity consumption

Driving Circularity Through Recycling

IVL Continued to expand recycling footprint despite pandemic, adding 10 new assets



Source: IVL Analysis

A real-time bottle recycling counter on our website

IVL's 10-year recycling effort

Reduced
2.4 million tons of carbon footprint from the product lifecycle

Recycled
72 billion post-consumer PET bottles

2011 - 2021

Created
Approximately
3,900 – 5,900
Direct and indirect additional jobs

Prevented
1.6 million tons of plastic waste From going to landfill

Supply Chain Decarbonization

Upgrade Key Supplier Tools and Digital Data Systems

Capacity Building
(Global Training and engagement with suppliers who may differ in decarbonization maturities)

Supplier Engagement Program
(Align our procurement decisions based on program outcomes)

Phase 1 ☑
- Created GHG questionnaire
- Updated supplier responsible sourcing policy

Phase 2 ☑
- Hosted 2 internal workshops with global procurement teams on engagement process and materials

Phase 3
Q2/Q3 2022
- Engage with key raw material suppliers
- Build and launch supplier portal with Digital
- Continue supporting procurement with engagement

Phase 4
Future Scope
- Work with raw material and key non-raw material suppliers to decarbonize as needed

Objective 1: Compliance Management

- **Engagement tool**: Responsible Sourcing Policy
- **Value addition**: Regulatory compliance & reputational risk
- **Stakeholders**: Suppliers, investors, regulators, and customers

Engage with:	
Suppliers in top 60% of total spend…	By 2022
Suppliers in top 90% of total spend…	By 2023

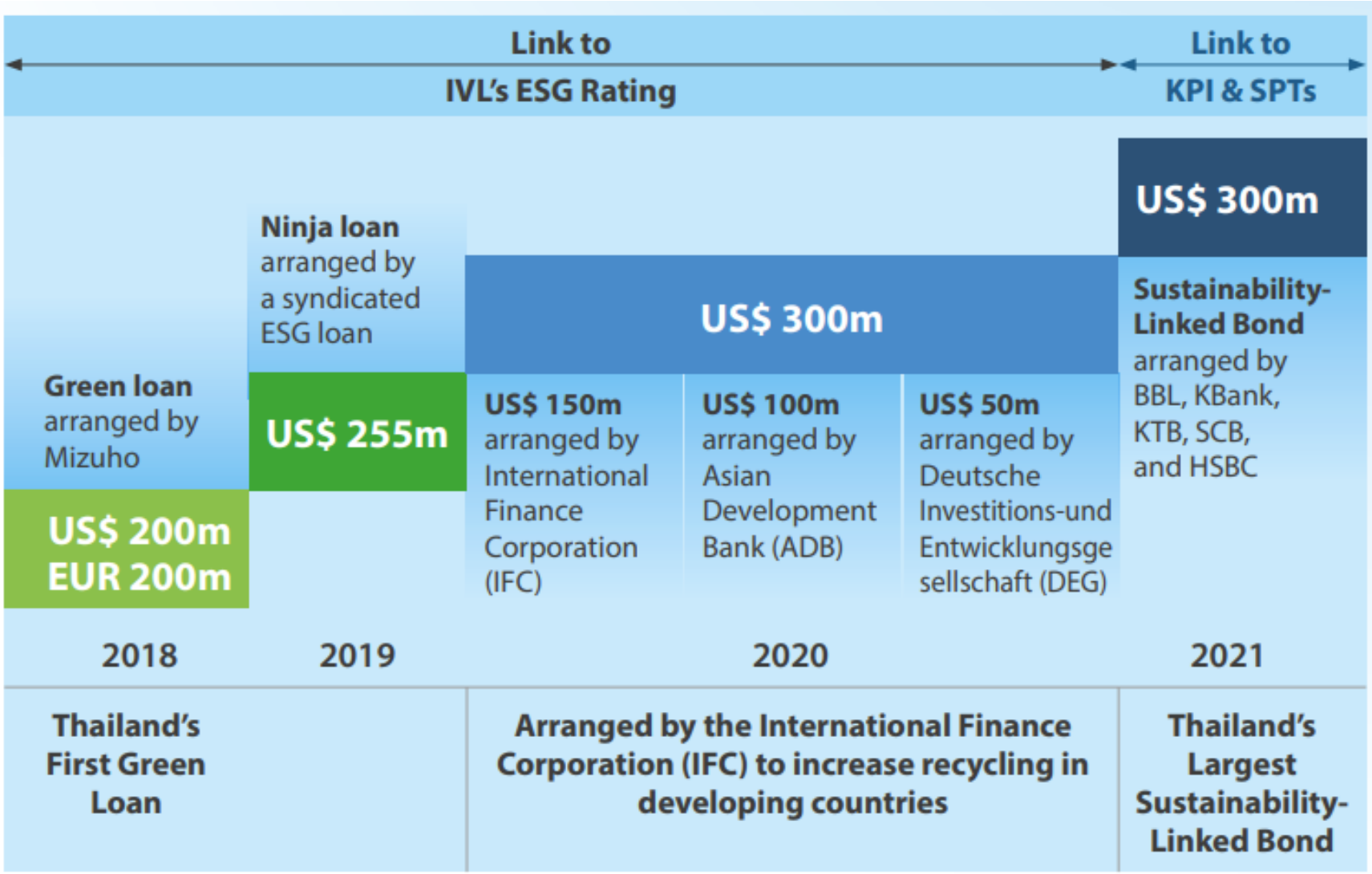
Objective 2: Scope 3 Management

- **Engagement tool**: GHG Questionnaire
- **Value addition**: Customer alignment, Science-based Targets & Showcase industry leadership
- **Stakeholders**: Key raw material suppliers, customers

Engage with:	
Suppliers in top 50% of total spend…	By 2022
Suppliers in top 80% of total spend…	By 2023

Securing Sustainable Finance

Total: **USD 1.3bn** in Sustainable Financing



Indorama Ventures issued THB 10 billion in Sustainability-Linked Bonds (SLBs) in 2021 to drive sustainable production and support its actions on climate change.

The largest issuance of SLBs in Thailand is part of our financing strategy across a range of instruments and will be measured by our performance in achieving sustainability targets while showcasing our long-standing commitment to sustainable growth.

3

บทบาทของบริษัทในการสร้างการเปลี่ยนแปลงเชิงบวกต่อสังคมและ/หรือสิ่งแวดล้อมผ่านกระบวนการทางธุรกิจหรือศักยภาพของบริษัท โดยแสดงถึง

(1) การวางกลยุทธ์และเป้าหมายที่มุ่งสร้างการเปลี่ยนแปลงในระดับอุตสาหกรรมหรือในสังคมวงกว้าง

(2) แนวทางการดำเนินงานที่ขับเคลื่อนให้เกิดการเปลี่ยนแปลงดังกล่าว

(3) การเปลี่ยนแปลงที่เกิดขึ้นจริงต่อสังคมและ/หรือสิ่งแวดล้อม รวมทั้งผลลัพธ์ที่บริษัทได้รับจากการดำเนินงานดังกล่าว ทั้งในเชิงคุณภาพและปริมาณ

Company's roles in creating a positive social and/or environmental impact in society & industry including

(1) Strategy, framework, goals

(2) Guidelines

(3) Qualitative & quantitative outcomes

Driving positive impact and supporting Sustainable Development Goals (SDGs)

12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Resource Maximization
Circular Economy

4 QUALITY EDUCATION
Recycling Education
Bottle Collection

11 SUSTAINABLE CITIES AND COMMUNITIES
Plastic Waste Reduction
Environment Protection

13 CLIMATE ACTION
GHG Reduction from
PET Bottle Recycling

Strategic Management Approach

Recycling Strategy and Commitments

Our Recycling Mission	To serve the recycling needs of IVL's customers by building a leading, differentiated, and economically attractive recycling business.		
Our Recycling Strategy	Strengthening global recycling capability	Ensuring a fully closed loop	Contributing to a circular economy
			
2025 Recycling Commitment	**US$1.5 billion** total investments in recycling	**50 billion bottles** recycling capacity per year	**750,000 tons** total post-consumer PET in polyester feedstock per year

+

+

CSR Strategy

PROJECT

Recycling Education *(Started in 2018)*

+

Bottle Collection *(Started in 2020)*

2030 Target

Educating 1,000,000 consumers around the world about recycling

Cumulative sorting of **at least 100 tons of post-consumer PET bottles for recycling**

New innovation and upcycling products To serve social needs

PPE
(Made from rPET yarns and washable 20 times)

Bedding sets
(Made from rPET yarn and 100% anti-bacterial)

Mechanism and Stakeholder Engagement

Global
(Partnerships, Collaborations & Industry Associations)

Business
(Players in Value Chain & Industry Associations)

Employee / Public
(Partnership, Collaborations & Industry Associations)

ELLEN MACARTHUR FOUNDATION
UN GLOBAL COMPACT
Global Commitment
THE RECYCLING PARTNERSHIP
GLOBAL PLASTIC ACTION PARTNERSHIP
CIRCULAR ECONOMY ACCELERATOR™ A RECYCLING PARTNERSHIP INITIATIVE

Call for Actions & Global Commitment

WORLD ECONOMIC FORUM

WEF : CEO Climate Alliance to world leaders We support you in taking decisive climate steps at COP26

Thought Leadership

Customers

DANONE

100% rPET packaging for Danone and Evien products

L'ORÉAL PARIS

L'OCCITANE EN PROVENCE

100% rPET packaging

Partners : Technology Developers

CARBIOS
Enzymes powering the Circular Economy

ioniqa

Recycling Education

KU KASETSART UNIVERSITY

AIT Asian Institute of Technology

SIAM UNIVERSITY

BMA กรุงเทพมหานคร

Bottle Collection

Trash Lucky

GEPP

Outcomes and Social Impacts

Recycling Education *(Since 2018)*

- Raise awareness of waste separation
- Knowledge of plastics and PET recycling
- Multiplying effects from knowledge sharing
- Networking and future collaborations

Thailand's Recycling Education (Jan – Aug 2022)

3,823 People Received Training	2,533 Students	327 Teachers	963 Public and Community People
173 Schools and Universities	5 Organizations	4 Virtual Training Sessions	19 Classroom Training Sessions
84 Teaching Hours	54 Recycling Articles	270 Downloads of Recycling Education Materials	1,428 Views and Downloads of Recycling Education VDOs

2030 Target
Educating **1,000,000** consumers around the world about recycling

Progress against 2030 target
53,585 People (Cumulative 2018-2021)

Outcomes
- **632,250** Bottles Collected
- Bottles Returned to Recycling Factory **14,050** kg.

Bottle Collection *(Since 2020)*

- Behavior change : able to properly separate PET plastic waste
- Well-being : less waste and more hygiene
- Better environment : less waste on land and in ocean
- Sustainable city : waste separation infrastructure, job creation

INDORAMA VENTURES

IVL Vision 2030 recycling ambition
- **3.13 million tons**
- **200 billion bottles per year**

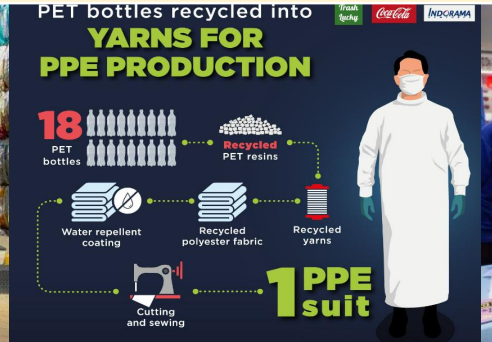
Progress against 2030 target
- 2,200,000 bottles
- Approx. 50 tons

2030 Target
Cumulative sorting of **at least 100 tons of post-consumer PET bottles for recycling**

GHG Reduction = 75 tCO_2e

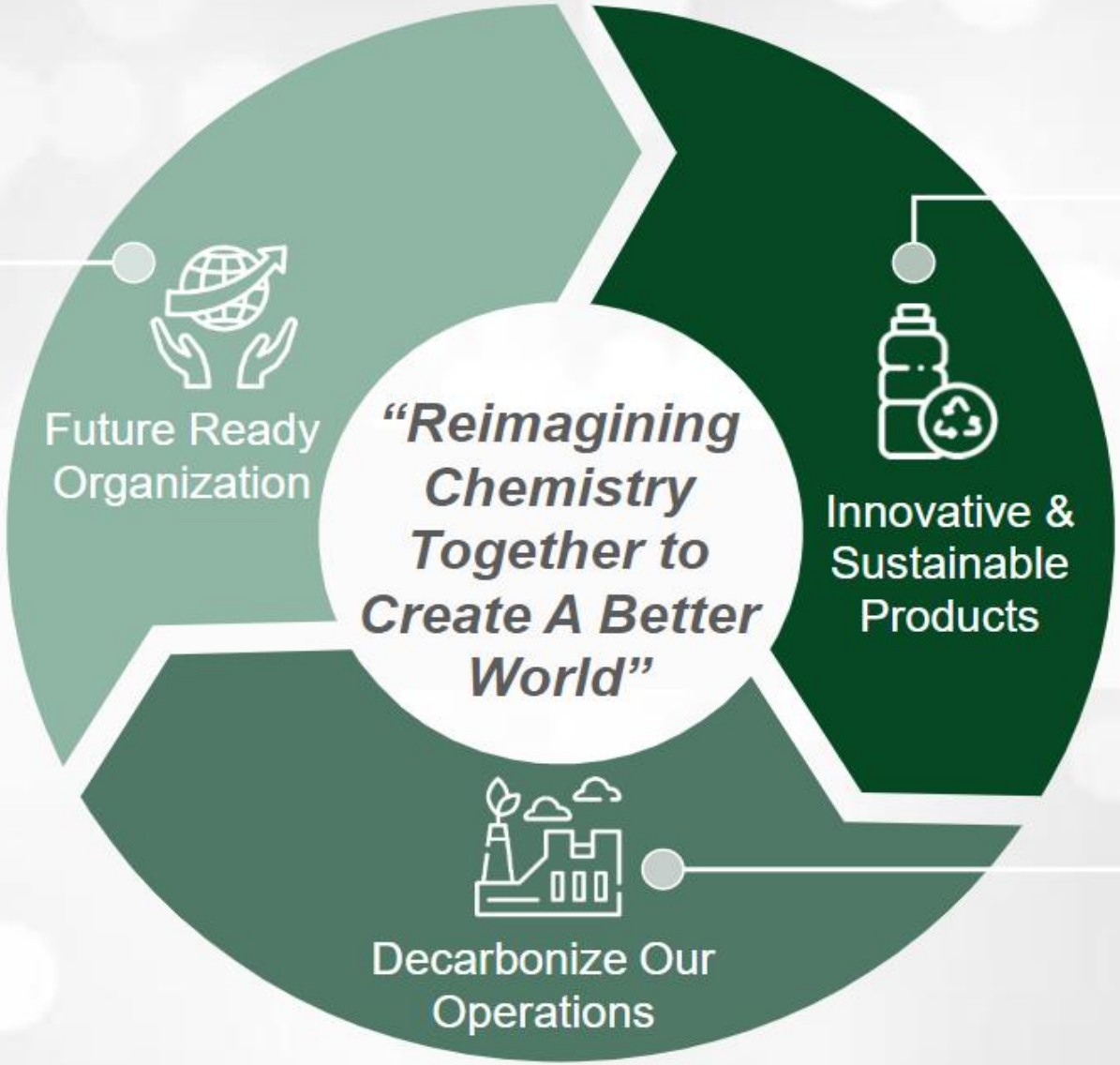
Benefits and Attributes :

Environmental		Social	
Reduce plastic waste *[From our recycling business (2011-2021) :* *72 billion bottles* *1.6 million tons of bottles]*	Jan- Aug 22 • **632,250 bottles** • **14.1 tons of bottles** 2019-2021 • **2.2 million bottles** • **50 tons of bottles**	**Behavior change** : more awareness on plastic waste separation	• **3,823 people trained** (Jan-Aug 22) • **57,408 people trained** (2018-Aug 2022)
		Social Return on Investment (Bottle collection to produce PPE suits)	**1:7 times in Thai baht**
Reduce GHG emission *[From our recycling business (2011-2021) :* *2.4 million tCO_2e]*	Jan- Aug 22 • **21 tCO_2e** 2019-2021 • **75 tCO_2e**	**Jobs creation** (in plastic waste separation value chain)	Approximate **3,900 – 5,900** Direct and indirect additional jobs
		Health and well-being	• Less waste • More hygiene
Protect environment	• Life on land • Life below water	**PET Waste Management System & Infrastructure** • PET Recycle Bin • PET application for bottle collection	

Appendix

Vision 2030



Future-proofing our organization, leveraging on new ways of working

- Digital tools
- LSS
- Next generation leaders

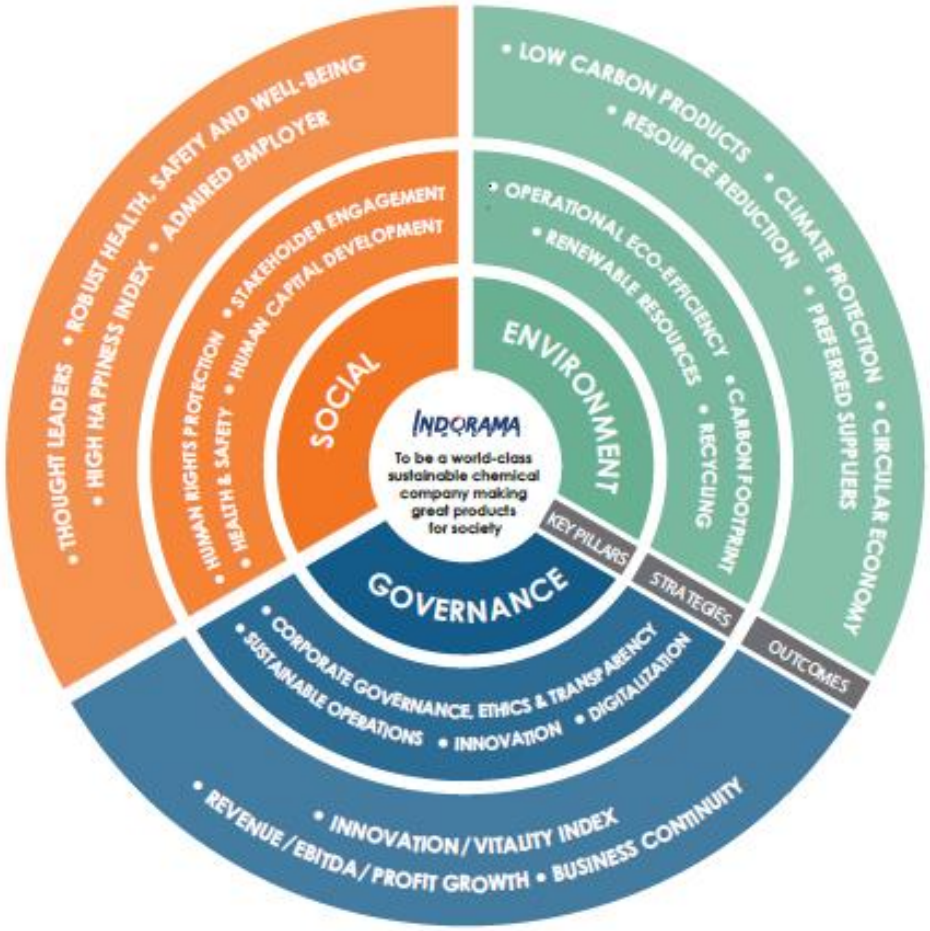
Reimagining our products for value, performance and environment

- Next level R&D
- Doubling down on rPET leadership
- 2.4 MT Biomass Feedstock

Working together with partners to decarbonize our operations

Through multiple strategies, ranging from coal phase out to CCUS

Sustainability Strategy



Environment - Responsible Operations

Our operations and products are focused on being environmentally-friendly, contributing to the circular economy, minimizing resource consumption and reducing emissions to fight climate change, and contributing to the circular economy.

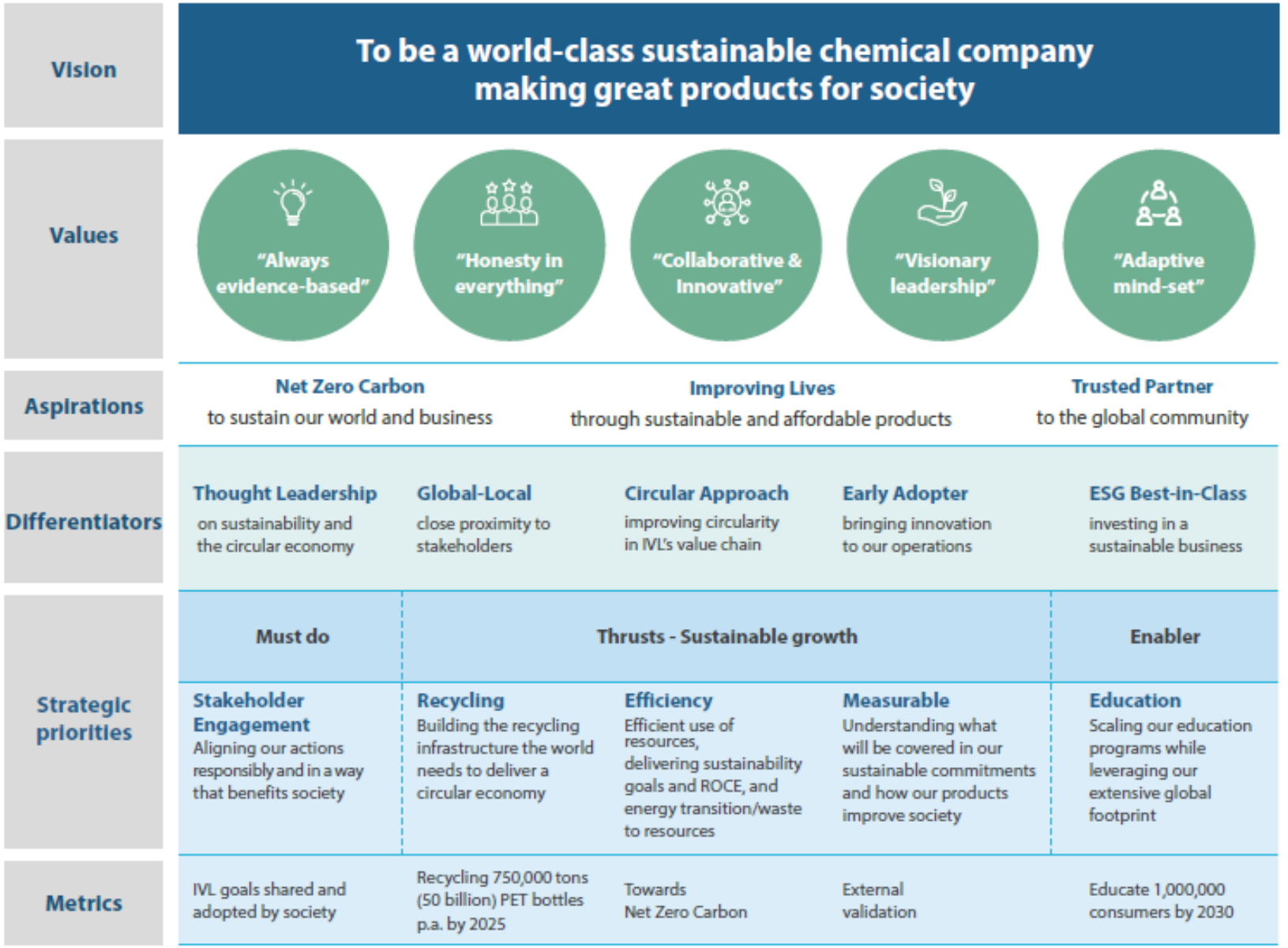
Social - Empowerment Culture

Our respect for human rights, engagement and investments in capacity building, and creating shared value for our stakeholders demonstrates our commitment to achieving long-term success.

Governance - Business Potential

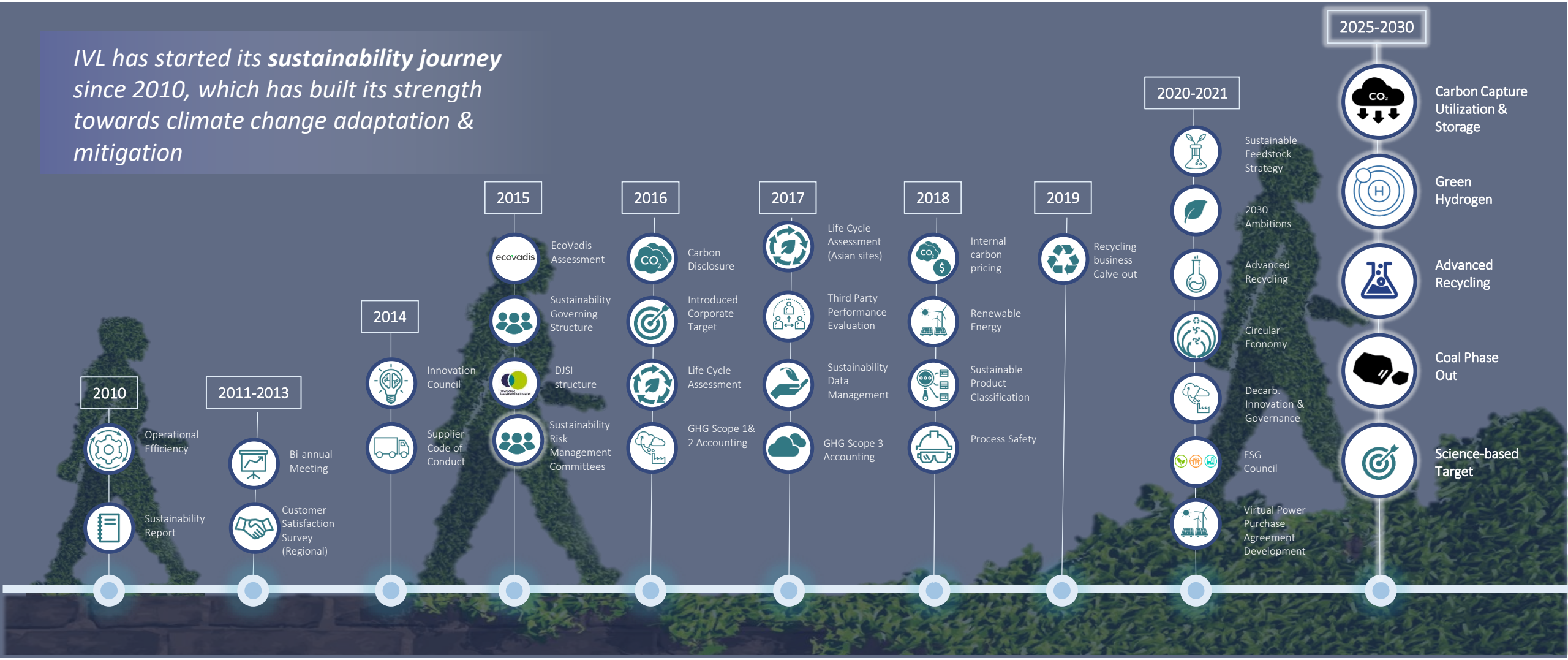
Our business is based on our integrity and ethical principles, driving customer experiences through our innovative products and moving forward in meeting societal needs for sustainable growth and leadership.

Sustainability Framework



IVL's Sustainability Journey

*IVL has started its **sustainability journey** since 2010, which has built its strength towards climate change adaptation & mitigation*



Our Sustainability Ambitions

Focusing On Short And Medium-term Targets

Committed to
SBTi
(May 2022)

Sustainability CAPEX
US$ 2 billion by 2025
(Cumulative 2020-2025)
US$ 7 billion by 2030
(Cumulative 2020-2030)

Recycling Commitment
- **Post-consumer PET bale input per year**
  0.75 million tons by 2025
  1.5 million tons by 2030(A)
- **Post-consumer Bottles recycled per year**
  50 billion by 2025
  100 billion by 2030(A)

Energy*
Reduction in energy intensity
5% by 2025
15% by 2030

Recycling Education
Educating **1,000,000 consumers** around the world about recycling by 2030

GHG*
Reduction in combined GHG (Scope 1&2) intensity
10% by 2025
30% by 2030

Occupational Health & Safety
LTIFR < 0.5 cases per 200,000 man-hours by 2025

Renewable Electricity
10% by 2025
25% by 2030

Waste
90% waste diverted from landfill by 2025/2030

Water*
Reduction in water intensity
10% by 2025
20% by 2030

Circular Economy
- **Integrating** the circular economy concept into IVL's operations
- **Partnering** with organizations **to intensify** our contributions to **the circular economy**

Circular Feedstocks
Bio-based feedstock : 16% against whole IVL feedstock
Recycled feedstock (rPET)(B) : 10% against whole IVL feedstock and **23% against PET feedstock** by 2030

Remark: IVL Vision 2030 recycling ambition,
(A) 3.13 million tons and 200 billion bottles per year
(B) 21% against whole IVL feedstock and 48% against PET feedstock

* Base year 2020

Back-up slides

Climate Change Risk Assessment

Back-up for question no. 2

Climate-Related Risks

Transition Risk

Technology

Medium-term (3-10 years)
- Higher costs from increased energy consumption
- Unsuccessful investments in new technologies
- Substitution of existing products with low emissions products

Market

Medium-term (3-10 years)
- Changes in consumer preferences from high carbon intensive to low carbon products
- Increased cost of raw materials
- Access to financing & insurance increasingly affected by climate & environmental risks

Policy and Legal

Medium- and long-term (3-20 years)
- Increased operational costs due to changes in environmental legislation
- Implementation of cap-and-trade or carbon tax in jurisdictions in which the company operates
- Exposure to litigation
- Enhanced emissions reporting obligations

Reputation

All time frames
- Global focus on plastic pollution
- Movements on fossil fuel avoidance
- Change in consumer preferences
- Increased stakeholder concern

Physical Risk

Acute

Medium- and long-term (3-20 years)
- Increased severity of extreme weather events such as cyclones, droughts, and floods

Chronic

Medium- and long-term (3-20 years)
- Risk of sea level rise and riverine flooding for sites located in high-risk areas
- Rising mean temperatures
- Changes in precipitation patterns and extreme weather variability leading to production disruption
- Impact of water stress on production

Climate-Related Opportunities

Energy Source
- Use of lower emission sources of energy
- Use of supportive policy incentives
- Use of new technologies
- Participation in carbon markets
- Innovative power purchase contract structures

Resiliency
- Participation in renewable energy programs and adoption of energy efficiency measures
- Resource substitution, innovation, and diversification
- Development and deployment of recycling technologies
- Meeting and getting ahead of emissions and single use plastics regulation

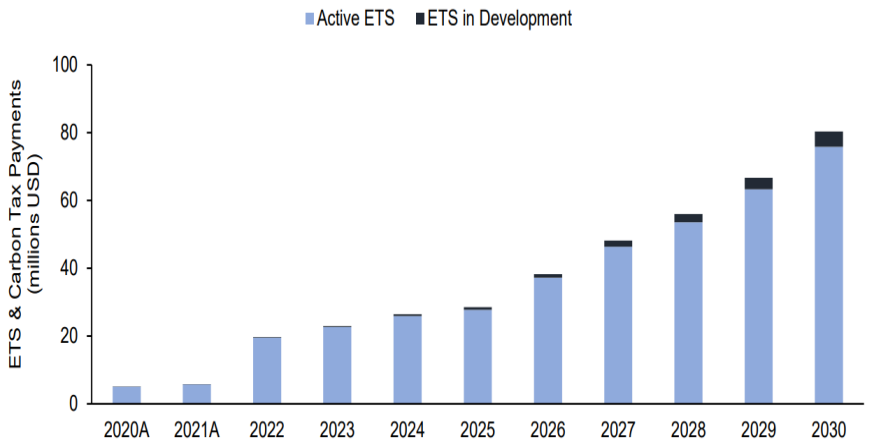
Resource Efficiency
- Use of more efficient modes of transport
- Use of more efficient production and distribution processes
- Use of recycling
- Building efficiency improvements
- Reduced water usage and consumption
- New technologies to reduce resource intensity in production

Products and Services
- Development and expansion of low emission goods and services
- Development of climate adaptation and risk solutions
- Development of products or services through R&D and innovation
- Diversification of business activities
- Shift in consumer and customer preferences

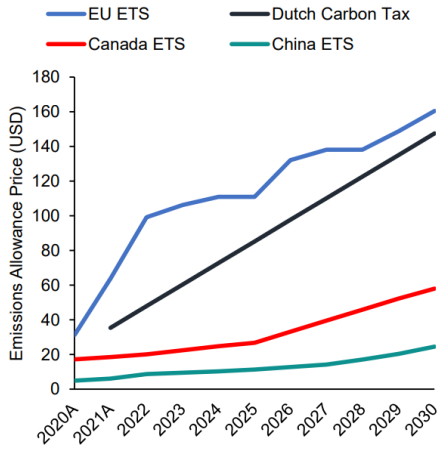
Markets
- Access to new markets
- Use of public sector incentives
- Access to new assets and locations needing insurance coverage

Carbon Pricing Financial Impact Model

Estimated ETS payments at IVL-level 2020A-2030F

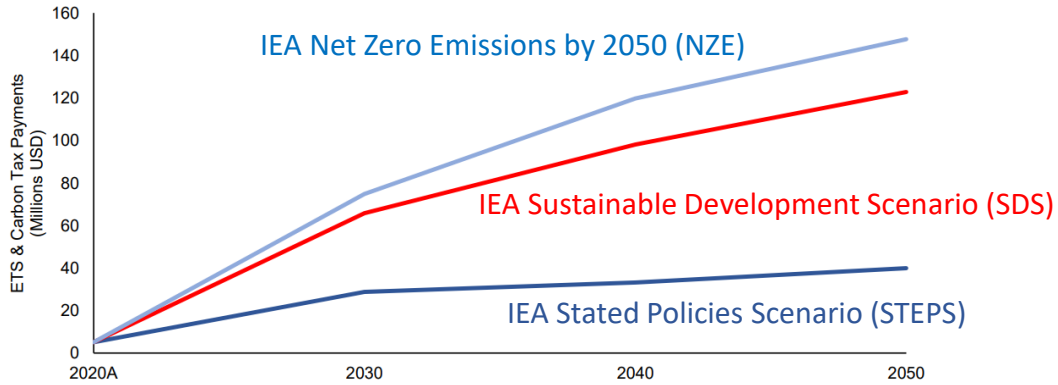


Emissions allowance price forecast



Projected costs increase to around US$390m over the current decade.

Scenario Analysis



INDORAMA

Climate-Related Risk Management Report

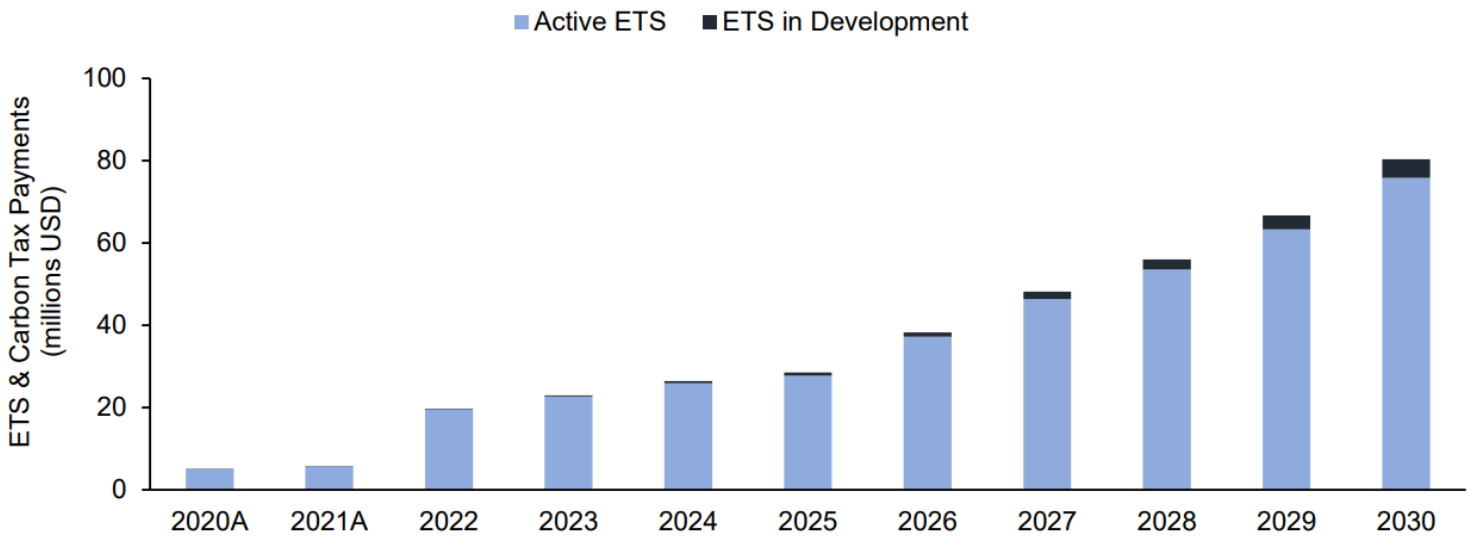
Prepared in accordance to the recommendations of the TCFD

TCFD Report 2022

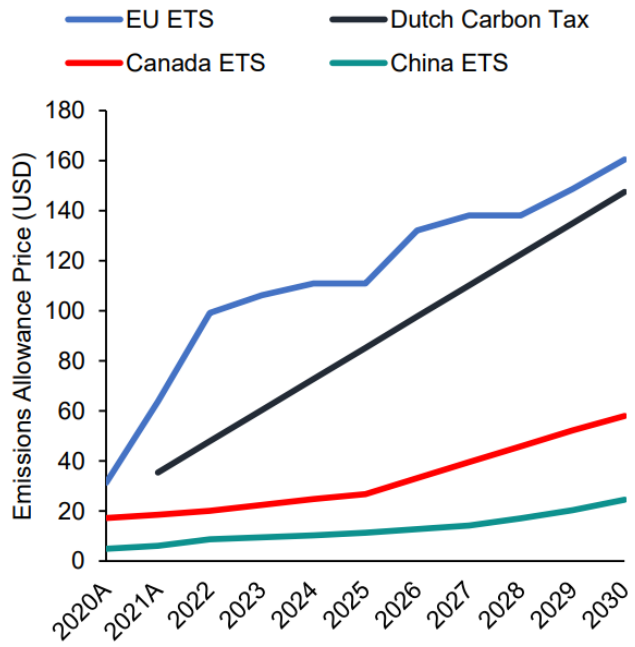
Back-up for question no. 2

Carbon Pricing Financial Impact Model

Estimated ETS payments at IVL-level 2020A-2030F



Emissions allowance price forecast



IVL also measures climate-related regulatory risks through financial impact modelling. The Carbon Pricing Impact Model ("model") forecasts the annual payments IVL makes towards emissions trading schemes (ETS) worldwide. The results of the model indicates that IVL's compliance costs are projected to increase from less than **US$10m** over the previous decade to around **US$390m** over the current decade, with **US$15m** of the figure from new ETS expected to come into operation.

The key inputs of the model include the following:

(1) Estimated scope 1 GHG abatement from decarbonization projects, with projects aggregated into 3 distinct scenarios (Approved, Promising, Aspirational)
(2) ETS free allocation / cap reduction schedule
(3) Emissions allowance price forecast
(4) Estimated operational date, allocation methodology, and sector coverage for future ETS [1]
(5) Overall IVL production to increase by 28% by 2030 from 2020 according to business plan, including expansions to existing sites, greenfield projects, and M&A

The key assumptions of the model include the following:

(1) All sites making current ETS payments or with annual scope 1 emissions greater than 25ktCO2e and within an area covered by an ETS in the future may be subject to ETS payments
(2) Free allocation remains at the level announced by regulators or at the level assumed for future ETS that have not disclosed a free allocation amount
(3) Emissions allowance prices remain within acceptable bounds of the allowance price forecast [2][3][4][5][6].
(4) Exchange rates remain constant

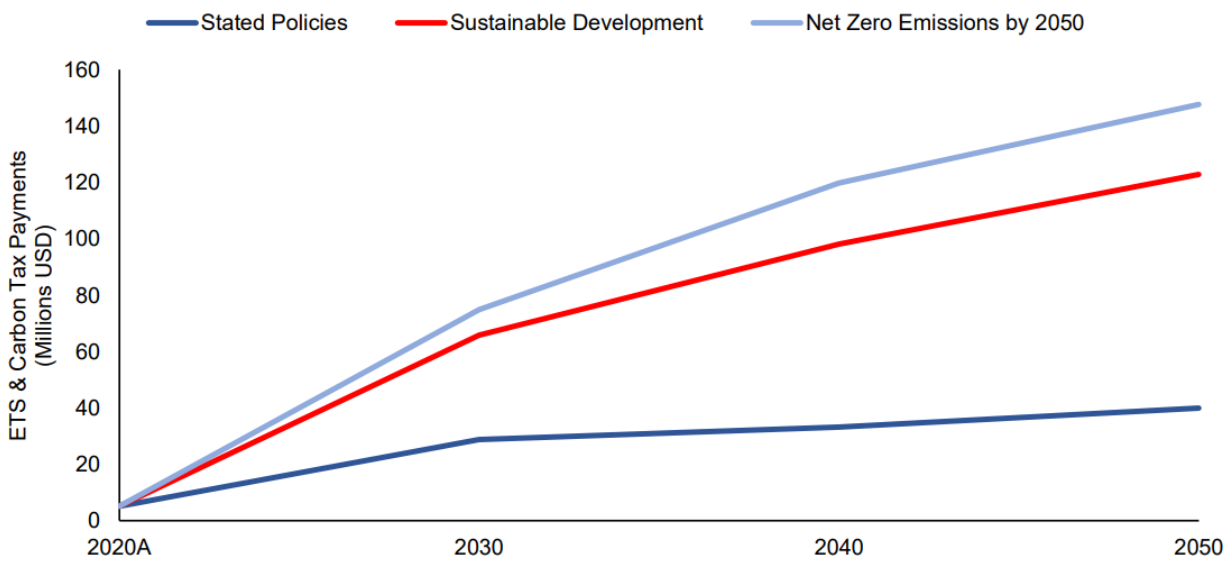
[1] Based on International Carbon Action Partnership (ICAP) materials and regulatory filings [2] EU ETS price sourced from BloombergNEF forecast (retrieved May 2022) [3] Dutch carbon tax based on active legislation [4] Western Climate Initiative (WCI) based on ClearBlue scenario analysis and BloombergNEF forecasts. [5] China ETS price forecast based on China Carbon Trading market report from JPMorgan and Refinitiv forecasts. [6] Based on exchange rates as of May 2022

Back-up for question no. 2

Scenario Analysis

Scenario Reference (USD)

Scenario	Scenario Description	2030 Impact	2040 Impact	2050 Impact
IEA Stated Policies Scenario (STEPS)	Business-as-usual without new climate policies. The Stated Policies Scenario reflects the impact of existing policy frameworks and today's announced policy intentions. The aim is to hold up a mirror to the plans of today's policy makers and illustrate their consequences for energy use, emissions and energy security.	$28.8m	$33.3m	$39.9m
IEA Sustainable Development Scenario (SDS)	An additional scenario referenced in WEO-2021 is the Sustainable Development Scenario (SDS). As a "well below 2 °C" pathway, the SDS represents a gateway to the outcomes targeted by the Paris Agreement. Like the NZE, the SDS is based on a surge in clean energy policies and investment that puts the energy system on track for key SDGs.	$65.8m	$98.2m	$122.9m
IEA Net Zero Emissions by 2050 (NZE)	Narrow but achievable pathway for the global energy sector to achieve net zero CO2 emissions by 2050, with advanced economies reaching net zero emissions in advance of others. This scenario also meets key energy-related United Nations Sustainable Development Goals (SDGs), in particular by achieving universal energy access by 2030 and major improvements in air quality. The is consistent with limiting the global temperature rise to 1.5 °C without a temperature overshoot.	$74.9m	$119.8m	$147.7m



Reference: Table of reference for climate scenarios, UNPRI (2021)
World Energy Model, IEA (2022).

Climate Change

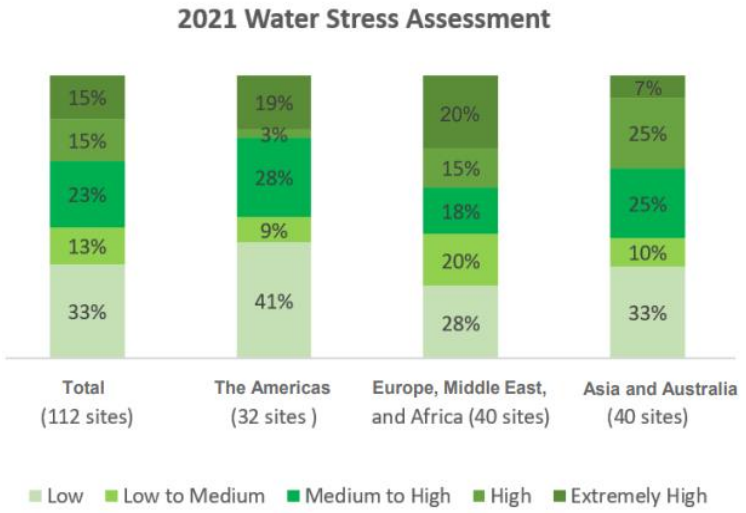
Water Risk Assessment

Back-up for question no. 2

We analyzed the latest water status across IVL's global network using the WRI AQUEDUCT water tool to address the following:

IVL's Water Risk Assessment Summary Report 2021

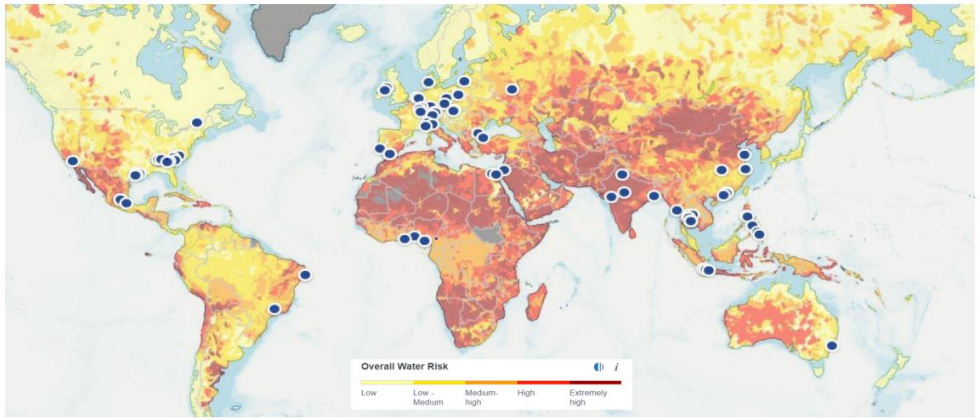
Summary Water Risk Analysis



Numbers of Sites	Water Stress		Drought	Coastal Floods	Riverine Floods
	2021	2030	2021	2021	2021
Extremely High	17	22	0	6	16
High	17	11	2	10	18
Medium to High	26	39	53	13	12
Medium	-	-	44	-	-
Low to Medium	15	21	10	16	23
Low	37	19	3	67	43
Total Sites	**112**	**112**	**112**	**112**	**112**

Conditions and Impacts in 2021 and 2030

Number of Manufacturing Sites	2021 Water Consumption	2021 Water Cost
112	88.0 million m^3	US$ 28.0 million



Impacts in 2030

PROJECTION – 2030 water cost

2021 Water Cost
US$ 28.0 million

2030 Estimated Water Cost
US$ 31.1 million

% Increase
↑ 11%

Case Studies

Rainwater harvesting system

RO System

Back-up for question no. 2

Green Projects: Improving Eco-Efficiency to reduce Carbon Footprint (GHG)

TYPES OF GREEN PROJECTS

EQUIPMENT EFFICIENCY
- *Rotary press. Filter instead of Centrifuge for PTA Separation,*
- *GT Project*

OPERATIONAL EFFICIENCY
- *Site FP*
- *APC for Process Control*
- *Dipping M/C productivity & efficiency gains by changing to gas heating*

WASTE HEAT UTILIZATION
- *Waste Heat Recovery from Process & Stacks – Various segments*
- *MVR (Steam Compressor)*

ON-SITE RENEWABLE POWER
- *Solar Power Plants at Thailand sites on BOOT basis*

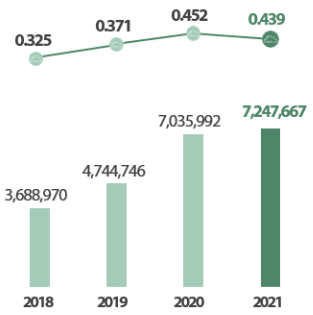
WATER REDUCTION
- *Waste Water Recycling;*
- *Process Improvement*

* Base year 2020

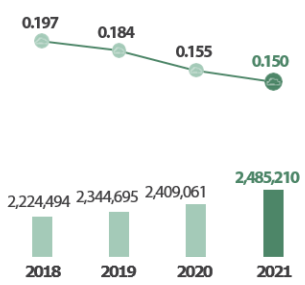
2025 Target **10%** reduction in combined GHG (Scope 1&2) intensity

2030 Target **30%** reduction in combined GHG (Scope 1&2) intensity

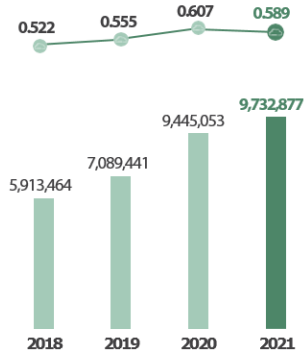
Direct GHG Emissions (Scope 1)



Indirect GHG Emissions (Scope 2)



Total GHG Emissions (Scope 1 & 2)



GHG emissions (tCO_2e) — Intensity (tCO_2e / ton of production)

Note: 0.589 tCO_2e / ton of production for 2020 and 2021 reporting scopes

GHG Scope 3

Since 2020, GHG Scope 3 data collection coverage has been 100% for 5 categories.
- Purchased Goods and Services
- Fuel and Energy - related Activities
- Upstream and Downstream Transportation and Distribution
- Employee Commuting and Business Travel
- Waste Generated in Operations

2021 Highlights

Establishment of Decarbonization Committee consisting of subject matter experts from each segment to oversee the decarbonization initiatives

US$ 28.5 million CAPEX investment in **GHG Reduction Projects**

143,175 tons of GHG reduction from renewable energy consumption (Biogas, biomass, renewable electricity)

100% GHG accounting, verification and assurance in accordance with ISO 14064-1 and ISO 14064-3

Progress against 2025 targets

3% reduction in combined GHG (Scope 1&2) intensity

Back-up for question no. 2

Green Projects: Improving Eco-Efficiency to reduce Carbon Footprint (Energy)

TYPES OF GREEN PROJECTS

EQUIPMENT EFFICIENCY
- *Rotary press. Filter instead of Centrifuge for PTA Separation,*
- *GT Project*

OPERATIONAL EFFICIENCY
- *Site FP*
- *APC for Process Control*
- *Dipping M/C productivity & efficiency gains by changing to gas heating*

WASTE HEAT UTILIZATION
- *Waste Heat Recovery from Process & Stacks – Various segments*
- *MVR (Steam Compressor)*

ON-SITE RENEWABLE POWER
- *Solar Power Plants at Thailand sites on BOOT basis*

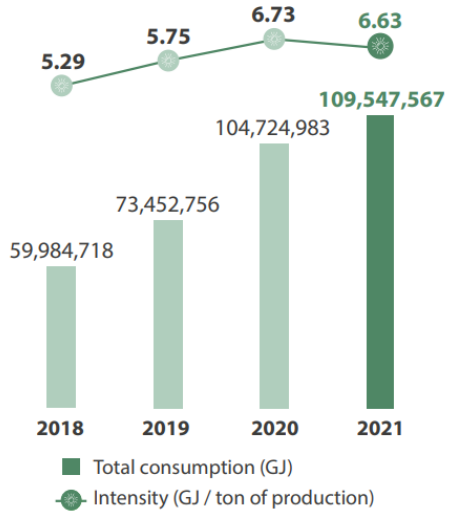
WATER REDUCTION
- *Waste Water Recycling;*
- *Process Improvement*

* Base year 2020

2025 Target **5%** reduction in energy intensity

2030 Target **15%** reduction in energy intensity

Total Energy Consumption



Progress against 2025 targets

1.5% reduction in energy intensity

FLOATING SOLAR PANELS AT NAKHON PATHOM

Indorama Polyester Industries—Nakhon Pathom successfully installed solar photovoltaic (PV) modules on all available rooftops generating renewable electricity for onsite consumption. In 2021, they further increased capacity by installing floating solar panels in the effluent treatment plant (ETP) pond. By generating 5,250 KWp from the solar installations, the plant will be able to reduce 3,474 tCO_2e carbon emissions.

PT. INDORAMA POLYPET INDONESIA RECEIVES AN 'ENERGY REPORT CERTIFICATE'

Indonesia's Ministry of Energy and Mineral Resources granted PT. Indorama Polypet Indonesia an "Energy Report Certificate" recognizing the company as a sustainability leader in 2021. This will further increase trust in the company's continued commitment towards making Net Zero Carbon a reality alongside recognition among stakeholders in the country of IVL's sustainability leadership.

Back-up for question no. 2

Green Projects: Improving Eco-Efficiency to reduce Carbon Footprint (Water)

TYPES OF GREEN PROJECTS

EQUIPMENT EFFICIENCY
- *Rotary press. Filter instead of Centrifuge for PTA Separation,*
- *GT Project*

OPERATIONAL EFFICIENCY
- *Site FP*
- *APC for Process Control*
- *Dipping M/C productivity & efficiency gains by changing to gas heating*

WASTE HEAT UTILIZATION
- *Waste Heat Recovery from Process & Stacks – Various segments*
- *MVR (Steam Compressor)*

ON-SITE RENEWABLE POWER
- *Solar Power Plants at Thailand sites on BOOT basis*

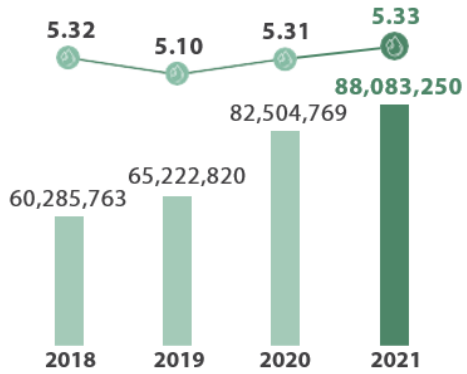
WATER REDUCTION
- *Waste Water Recycling;*
- *Process Improvement*

* Base year 2020

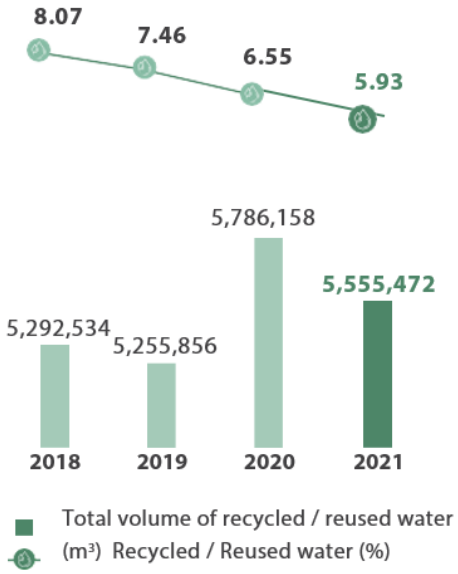
2025 Target **10%** reduction in water intensity

2030 Target **20%** reduction in water intensity

Total Water Withdrawal



Total Recycled / Reused Water



Note: 5.33 m³ / ton of production for 2020 and 2021 reporting scopes

We conduct a global water sensitivity study using WRI's AQUADUCT 3.0 Water Risk Tool and prepared a **water stress analysis report** including 5 categories- water stress, drought, riverine flood, coastal flood and seawater rise, to see its impact to our operations.

2021 Highlights

US$ 1.8 million CAPEX investment in **Water Consumption Reduction Projects**

5 sites have zero wastewater discharge

Progress against 2025 targets

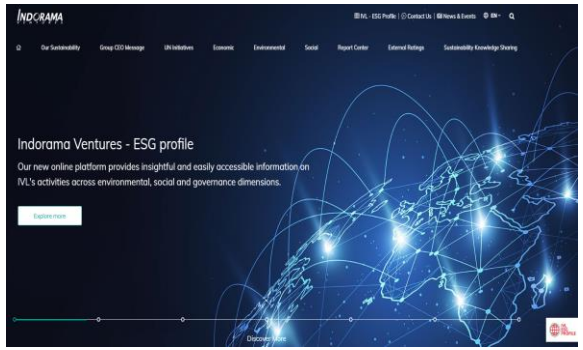
0.48% increase in water intensity

Advanced Sustainability Reporting

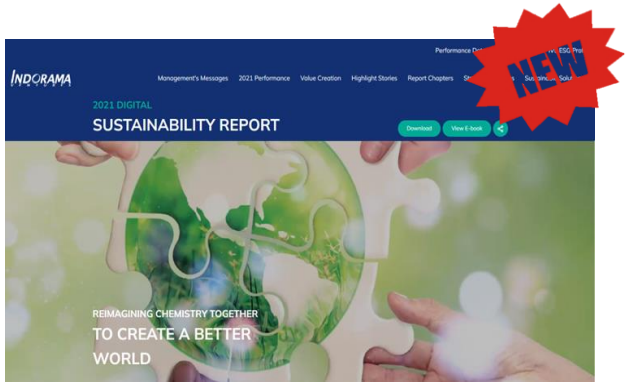
Sustainability Report

Full version & Executive Summary

Website



PDF / Interactive PDF / E-book

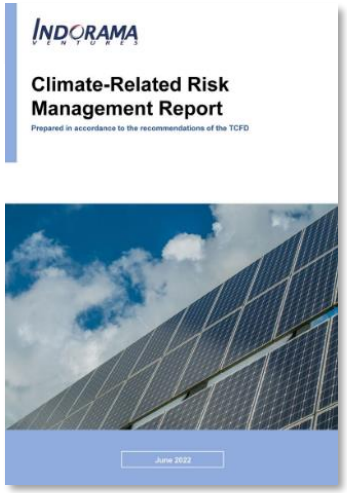


Digital Report

Chart Generator

TCFD Report

The first company in Thailand and the second in SEA to adopt TCFD reporting



Water Risk Assessment Summary Report

SDGs Report

The first private sector to publish the SDGs Report

Overview of our activities

Recycling Education

Progress against 2030 target

57,408 people
(Cumulative 2018- Aug 2022)

Thailand's recycling education (Jan – Aug 2022)

3,823
People received training

2,533
Students

327
Teachers

963
Public and Community People

5
Organizations

173
School and Universities

270
Downloads of Recycling Education Materials

1,428
Views and Downloads of Recycling Education VDOs

632,250
Bottles Collected

Bottles returned to the Recycling Factory
14,050 kg.

Back-up for question no. 3

Zero waste to landfill (ZWL) program

7 plants in Thailand received ZWL Certificate

Progress against 2025 target

78%
Waste diverted from landfill

Public-private collaboration to collect and recycle post-consumer PET bottles into medical equipment

8,000 PPE Distributed
(Made from rPET yarns and washable 20 times)

1,000 bedding sets
Pillow cover and bed sheet (Made from rPET yarn and 100% anti-bacterial)

32 hospitals
and medical facilities (Globally)

14 organizations involved
in the collection of post-consumer PET bottles

3 countries
(Thailand, India, Brazil)

Equivalent to a reduction of 14.4 tCO_2e

420,000 tons of PET bottles
collected

Social Return on Investment (SROI) value of 1:7 times in Thai baht

Zero waste to landfill (ZWL) program

- We will work hard to guarantee that our waste is properly managed.
- Audit requirement for ZWL is 99% waste diversion from landfill.

2025/2030 Target

90%*
waste diverted from landfill

It will help reduce GHG emissions remarkably, with an annual reduction of CO_2 emissions of about **5,000 tons.**

Plants in Thailand received ZWL certificate

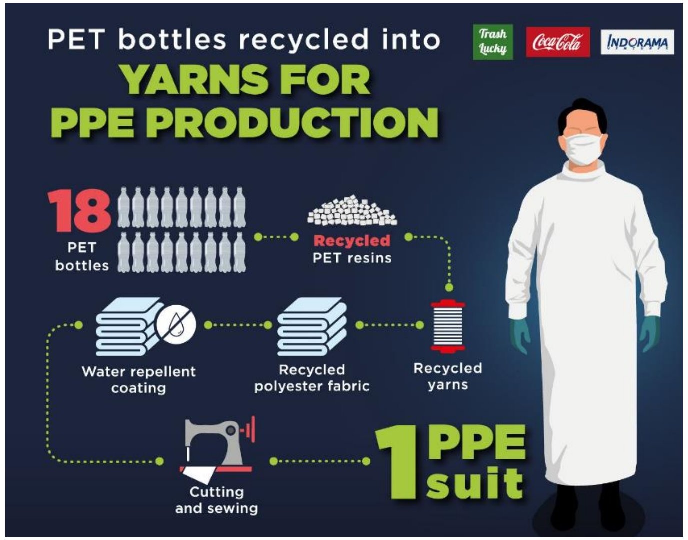
Indorama Polyester Industries Public Company Limited – Nakhon Pathom

Indorama Polyester Industries Public Company Limited – Rayong

Petform **Lopburi**
Nakhon Pathom
Nakhon Ratchasima
Rayong
Pathum Thani

Our activities on recycling and plastic waste reduction

Public-Private collaboration to collect and recycle post-consumer PET bottles Into medical equipment



8,000 PPE Distributed
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420,000 tons of PET bottles
collected

14 organizations involved
in the collection of post-consumer PET bottles

Equivalent to a reduction of 14.4 tCO_2e

SROI value

1:7 times
in Thai baht

We evaluated the overall **Social Return On Investment (SROI)**, including the environmental and social impacts achieved.

Our partnerships

Recycling Education

- ✓ Conducted a recycling educational program **as part of our recycling business** since 2018.
- ✓ This program helps children understand that they can play a part in **driving a circular economy.**
- ✓ **We have extended our collaborations with various institutions and Scaled the program Globally.**

Target

Educating 1,000,000 consumers around the world about recycling by 2030

Thailand's recycling education (Jan – Aug 2022)

- **2,533** students
- **327** teachers
- **173** schools and universities
- **5** organizations
- **963** Public and Community people
- **84** Teaching hours
- **3,823** people
- **4** Virtual training sessions
- **19** Classroom Training sessions
- **54** Recycling Articles
- **270** Downloads of Recycling Education Materials
- **1,428** Views and Downloads of Recycling Education VDOs
- **632,250** Bottles Collected
- Bottles returned to the Recycling Factory **14,050 kg.**