Sustainable approaches in semiconductor manufacturing

Intel Ireland

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What I'll cover today

The Intel
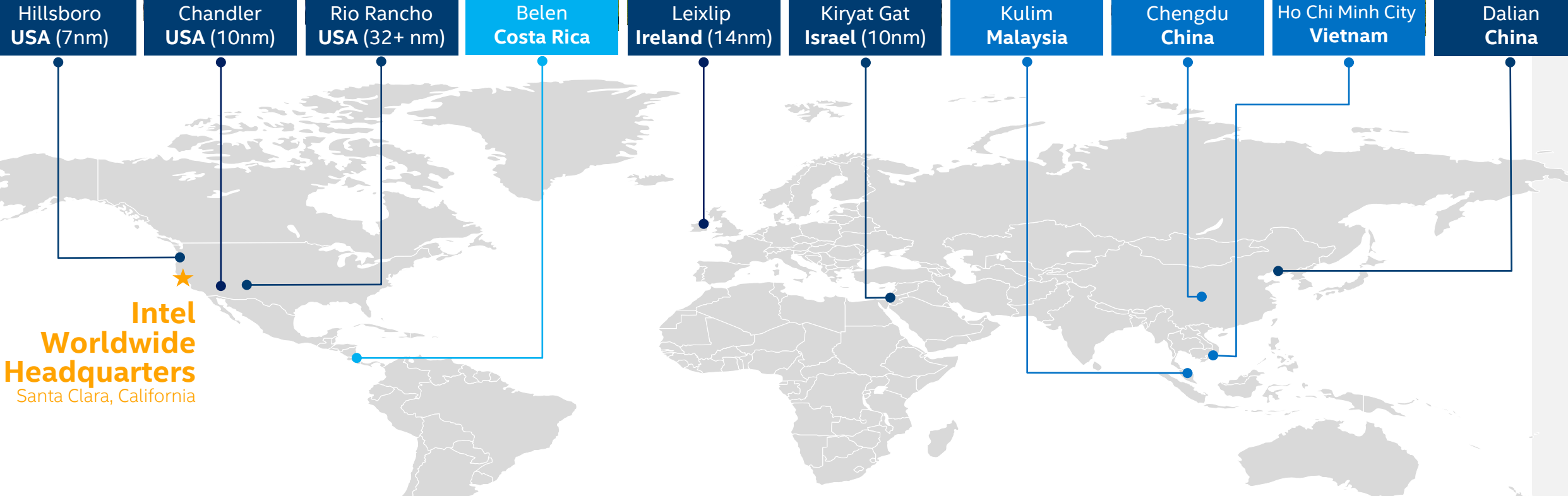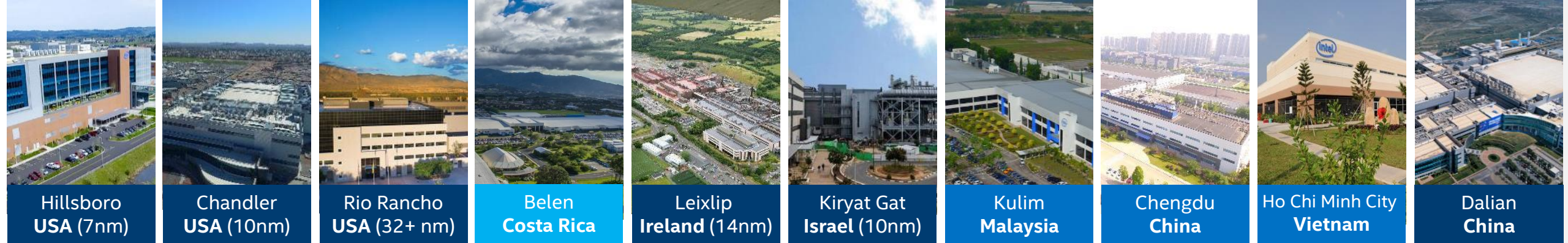Ireland Site

Corporate
Social
Responsibility
at Intel

Our
Approaches to
Sustainability
(Global & Local)

- 2021

- $22Bn total investment

- $7Bn additional from 2019 – 2021.

- Designed to bring Intel's latest generation 7nm process technology to the region and expand our manufacturing operations.

- 1600 permanent high-tech jobs.

- 5000 construction jobs.

From Sand to Silicon | Intel - YouTube

Hillsboro **USA** (7nm) · Chandler **USA** (10nm) · Rio Rancho **USA** (32+ nm) · Belen **Costa Rica** · Leixlip **Ireland** (14nm) · Kiryat Gat **Israel** (10nm) · Kulim **Malaysia** · Chengdu **China** · Ho Chi Minh City **Vietnam** · Dalian **China**

Intel Worldwide Headquarters Santa Clara, California

Our Global Manufacturing Footprint

■ Wafer Fabs ■ Assembly & Test ■ Test Only

Ireland Site Regulation & Management Systems

Industrial Emissions Licence from the EPA
Greenhouse Gas Permit from the EPA
Upper Tier Control of Major Accident & Hazards Site
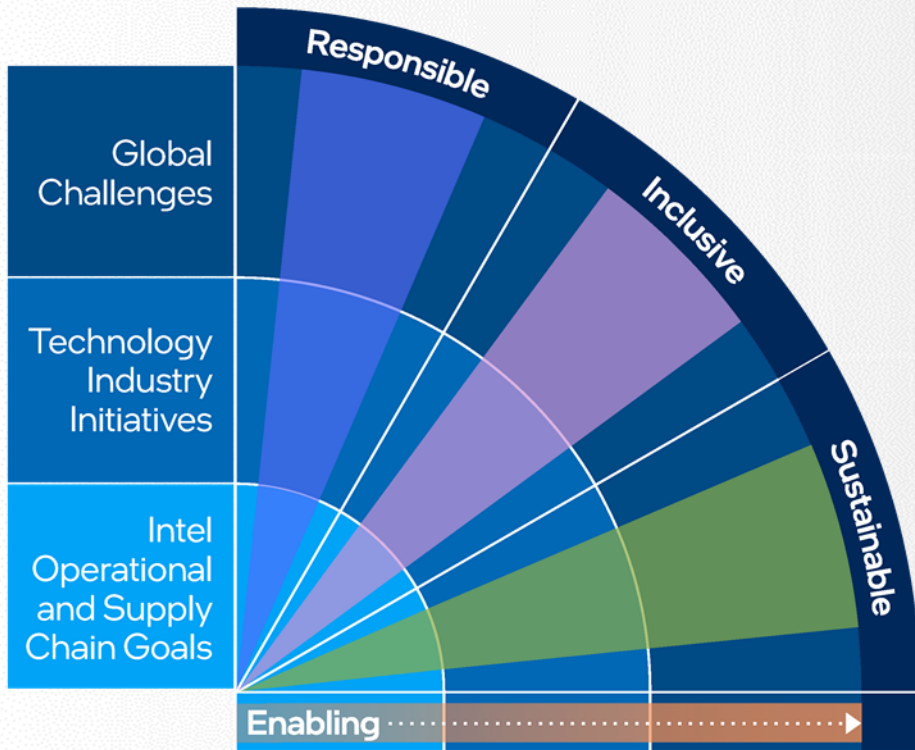Special Area of Conservation (Rye Water)

Our Management Systems and certifications
ISO 14001 (Environmental Management)
ISO 45001 (Occupational Health & Safety)
ISO 50001 (Energy) (early adopters IS 393, EN 16001, ISO 50001)
Business in the Community Working Responsibly Mark (ISO 26000).

Making a Positive Impact on Society, Business, Planet

intel RISE

Responsible — Revolutionize how technology will help improve health and safety

Inclusive — Make technology fully inclusive and expand digital readiness

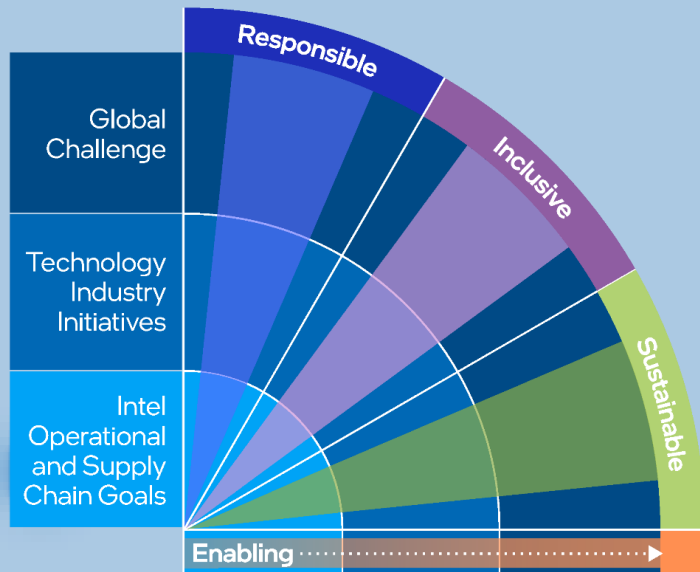**Sustainable** — Achieve carbon neutral computing to address climate change

Enabling — Accelerate the ways we enable progress through our technology and the expertise and passion of our employees

Global Challenges

Technology Industry Initiatives

Intel Operational and Supply Chain Goals

Responsible

Inclusive

Sustainable

Enabling

2030 Sustainability Goals

Continue to raise the bar for ourselves in own operations and supply chain to deliver value for our customers and help them reach their corporate responsibility goals and targets

Intel Operational and Supply Chain Goals

SUSTAINABLE PILLAR	GOAL AREA	2030 GOAL
	CLIMATE/ ENERGY	• 10% reduction in our absolute Scope 1 and 2 carbon emissions as we grow, informed by climate science • 100% renewable energy use across our global operations • Conserve 4 billion kWh of energy
	WATER	• Achieve net positive water — by conserving 60 billion gallons of water and funding external water projects that restore >100% of freshwater consumption
	ZERO WASTE/ CIRCULAR ECONOMY	• Achieve zero total waste to landfill • Implement circular economy strategies for 60% of our manufacturing waste streams in partnership with our suppliers

Climate and Energy

GOALS – 2020 through 2030

- Reduce Scope 1 + 2 GHG emissions by 10% (absolute)
- 100% renewable electricity, (2020 globally 82%, Ireland 100%)
- Conserve 4 billion kWh of energy (Intel Leixlip 800 million kWh)

ACTIONS

- Comprehensive Energy Conservation Program
- Projects – LED lighting, chiller upgrades, heat recovery systems.
- Ireland Site Carbon Champion

CHALLENGES

- Company growth and increasing manufacturing complexity
- Available options to reduce process emissions, through replacement or reduction

WHITE PAPER

Semiconductor Manufacturing
Environmental Sustainability

Reducing Carbon Through Energy Conservation in Manufacturing

intel.

Annual Performance Bonus for Employees (since 2008)

Annual Capital Fund for Energy Projects

Water Stewardship

GOALS – 2020 through 2030

Net positive water:

- Conserve 60 BG of water (cumulative) in operations
- Restore >100% of freshwater consumption through watershed projects

ACTIONS

- Water efficiency in buildings and operations
- Water reclaim and onsite treatment facilities
- Funding watershed projects, implemented by environmental non-profits

CHALLENGES

- Company growth and increasing manufacturing complexity
- Opportunity to increase water reuse in fabs
- Climate change risks and community concerns

We will achieve our goal of net positive water use when:

Water from operations treated and returned to communities or environment	+	Water restored through watershed projects	>	Water coming in from fresh water sources

Intel Ireland and National Parks and Wildlife launch Bog Restoration Project.

60 Hectares of drained bog in the Wicklow Mountains will be rewetted

River Liffey Head waters will increase by 60 – 90 million litres

The Bog restoration will have a positive impact on the Environment:

- Protecting biodiversity
- Improving Carbon Storage
- Improving water quality

Waste and Circular Economy

GOALS – 2020 through 2030

- Zero waste to landfill
- Implement circular economy strategies for 60% of manufacturing waste streams, in partnership with our suppliers

ACTIONS

- Waste generation reductions
- Solvent fuel blending, recovery of ASW, alternative packaging
- Upcycling of waste streams

CHALLENGES

- Company growth and increasing manufacturing complexity
- Available opportunities and capacity for recycling

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(intel)

Semiconductor Manufacturing
Environmental Sustainability

Circularity in Intel's Semiconductor Manufacturing: Recovery and Reuse

Intel has long been committed to recycling and circular economy strategies, with a focus on recovering and regenerating resources.

Our continuous support of the River Rye

Recognise value

Friends of the Rye River group

Monitoring
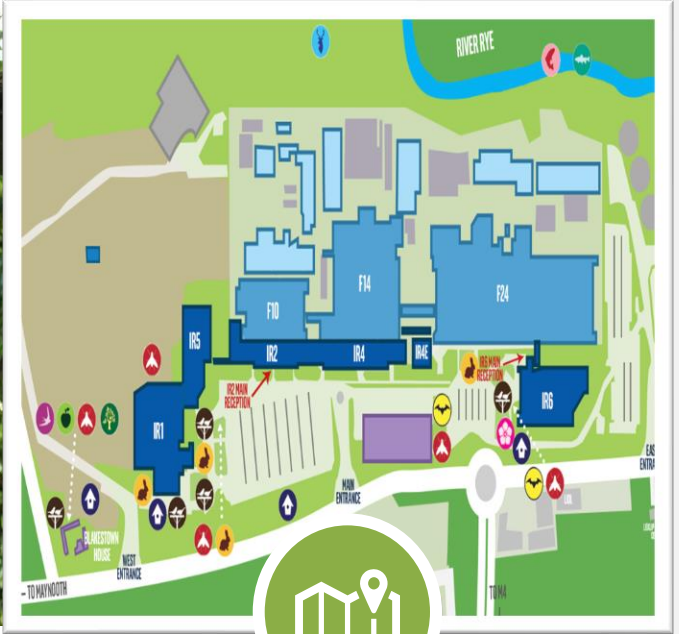
The Remarkable Rye River

Since 1992, Intel has partnered with University College Dublin, Kildare County Council and community groups to carry out extensive restoration of the Rye.

Enhancing this natural resource, which is an important salmon spawning ground, has improved its ecological value.

Embracing Biodiversity at Intel Ireland

We aim to be a leader when it comes to voluntary on-site biodiversity action.

We have enhanced, restored, and created biodiverse habitats in and around our campus and ensured continual improvement by embedding biodiversity into our Environmental Management System.

Wildflower Meadow

Orchard & Arboretum

Supporting the insect population

Biodiversity map

For more information:
www.intel.ie

www.intel.com/responsibility

www.intel.com/water

www.intel.com/2030goals