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The Energy Transition: What does it take to lead the way?

Lessons from Experts and Market Participants



The better the question.
The better the answer.
The better the world works.

The market opportunity

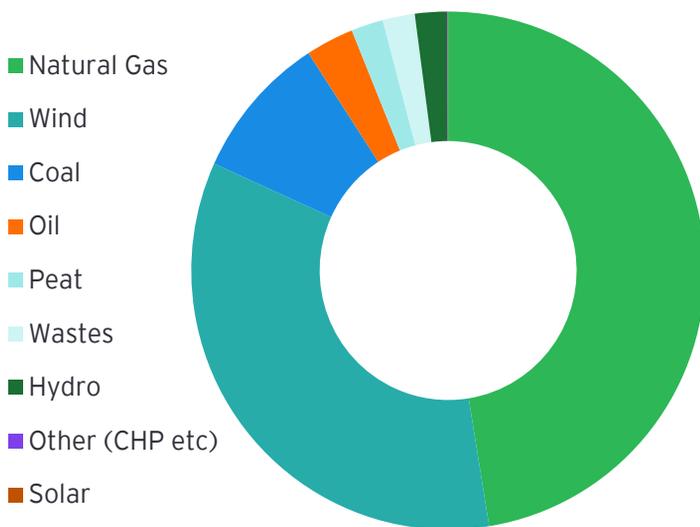
What did we learn from market leaders

The current Irish market

Electrification is the Irish Government's primary stated decarbonisation pathway.

The Climate Action Plan 2023 sets out an ambitious target to accelerate the delivery of onshore wind, offshore wind, and solar through a competitive framework to reach 80% of electricity demand from renewable energy by 2030.

Sources of Electricity Generation (Sept 2021-2022)



Source: [Energy in Ireland Report 2022](#) (Sustainable Energy Authority of Ireland - SEAI)

Wind energy in Ireland

Ireland is one of the leading countries in its use of wind energy and 2nd place worldwide in 2020, after Denmark.

We are in the top five globally for installed wind power capacity per capita and the contribution of wind energy to electricity demand.

In 2021, Wind provided over 85% of Ireland's renewable energy and 34% of our total electricity demand. It is the second greatest source of electricity generation in Ireland after natural gas.

Source: [SEAI](#)

Source	%
Natural Gas	47.00%
Wind	34.00%
Coal	9.00%
Oil	3.00%
Peat	2.00%
Wastes	2.00%
Hydro	2.00%
Other (CHP etc)	0.04%
Solar	0.02%
Combustible...	
Total	100.0%

“

Ireland ranks 13th out of the world's top 40 markets on the attractiveness of renewable energy investment and deployment opportunities in the latest Renewable Energy Country Attractiveness Index (RECAI) published by EY.



Ireland's market potential

Ireland's unique geographical advantages provides vast deep-water sites along its south and west coasts, which combined with direct and unobstructed access to the Atlantic Ocean, creates the potential for Ireland to become a global leader in offshore wind production of renewable energy.

By 2030, under the 2023 Climate Action Plan

Increase from 30% up to

80%

the proportion of renewable electricity

Increased target to

5GW

of installed offshore wind generation

Target of

9GW

of onshore wind generation

Additional

2GW

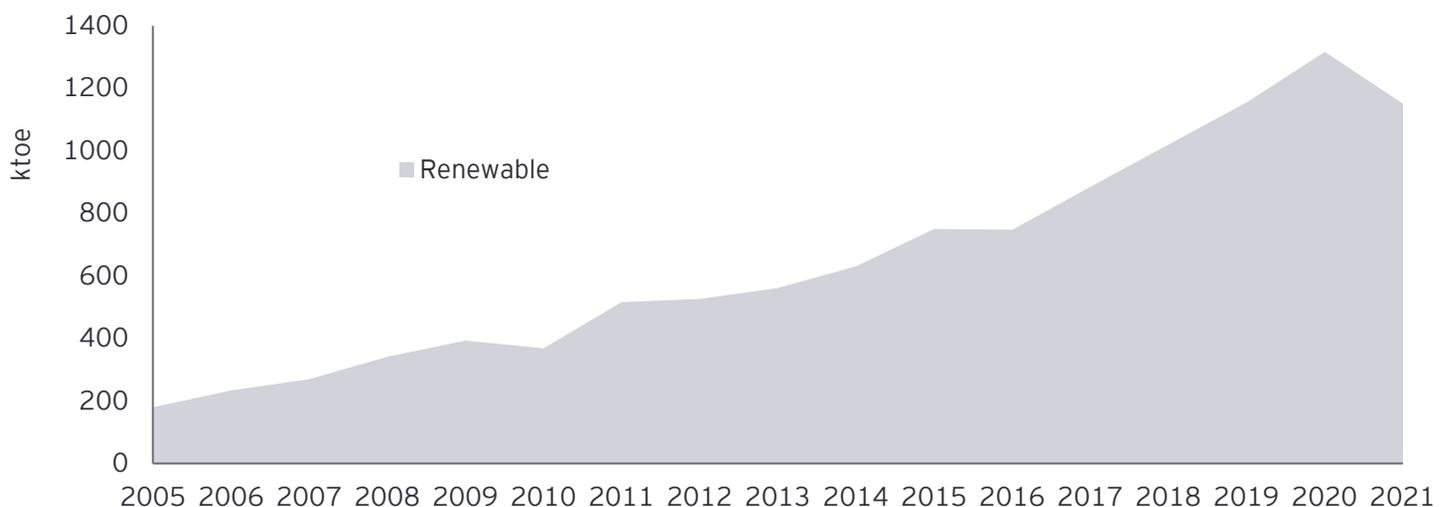
offshore wind for green hydrogen production

“

When adjusted for GDP, Ireland punches far above its weight, climbing the rankings to 6th place – reflecting that we are very attractive for renewable energy development for the scale of our marketplace...

Ireland's strong showing on EY's Renewable Energy Country Attractiveness Index reflects our robust market for onshore wind, and continued growth prospects for offshore wind and solar projects.

Primary inputs to electricity generation (2005 - 2021)



Source: Ireland's Energy Statistics (SEAI)

Opportunities beyond wind energy

Green Gases

“ Decarbonised gases such as biomethane and green hydrogen are a critical component for Ireland’s energy ecosystem... To facilitate investment, we will bring forward policies and regulatory frameworks to stimulate domestic biomethane production and use, and the development of a sizeable hydrogen sector.

- Climate Action Plan 2023

Hydrogen

Much like its one-of-a-kind geographical advantages, Ireland generates an equally unique opportunity with its large renewable electricity potential, creating the possibility to capitalise on this potential and generate hydrogen from water through the process of electrolysis.

The Department of the Environment, Climate and Communications is in the process of partnering with stakeholders domestically and across Europe to develop a pathway for Ireland to develop strong zero-carbon hydrogen infrastructure.

Source: Department of the Environment, Climate and Communications

Biomethane

Biomethane is a renewable gas produced from biological (such as food) and agricultural waste (i.e. livestock manure, grass, grass silage, etc.).

The production process breaks down organic material into biogas, which is further ‘purified’ to produce biomethane. Biomethane is capable of being a direct substitute of natural gas, due to its structurally identical nature.

Biomethane can thus be used in exactly the same way through the existing infrastructure. As a result homeowners and businesses will be able to transition to using biomethane without having to change anything.

The government plans to expand the indigenous biomethane sector and reach up to 1TWh of biomethane by 2025 and 5.7TWh by 2030.

Source: Climate Action Plan 2023

Green Hydrogen production from surplus renewable electricity

2GW

of offshore wind energy earmarked for green hydrogen production

Source: Climate Action Plan 2023

Of Ireland’s energy needs, natural gas meets over

30%

heating and powering 700,000 homes and businesses and generating over 50% of the electricity Ireland uses.

Source: Department of the Environment, Climate and Communications

Energy Storage

Electricity storage is crucial in supporting the deployment of intermittent renewable energy technologies such as wind, solar PV and ocean energy, which can be deployed at both grid-level and on a consumer scale. It further acts to enhance Ireland’s security of electricity.

The Government recognises Carbon Capture and Storage (CCS) as a possible bridging technology to support Ireland’s transition to a low carbon economy.

It further recognises that grid energy storage can mitigate some grid-connection challenges posed by intermittent power plants and help better manage the electricity system.

Sources: Ireland’s Transition to a Low Carbon Energy Future 2015 - 2030 National Energy & Climate Plan 2021-2030 (Government of Ireland)

“ The National Planning Framework recognises that new enabling energy infrastructure, which includes, inter alia, electricity storage projects, are crucial in supporting a distributed, renewable generation system, one capable of fully harnessing the power of domestic wind, wave and solar resources.

Source: Consultation on Developing an Electricity Storage Policy Framework (Government of Ireland)



Ireland's progress towards overall renewable energy share (RES) target

Ranked

23rd

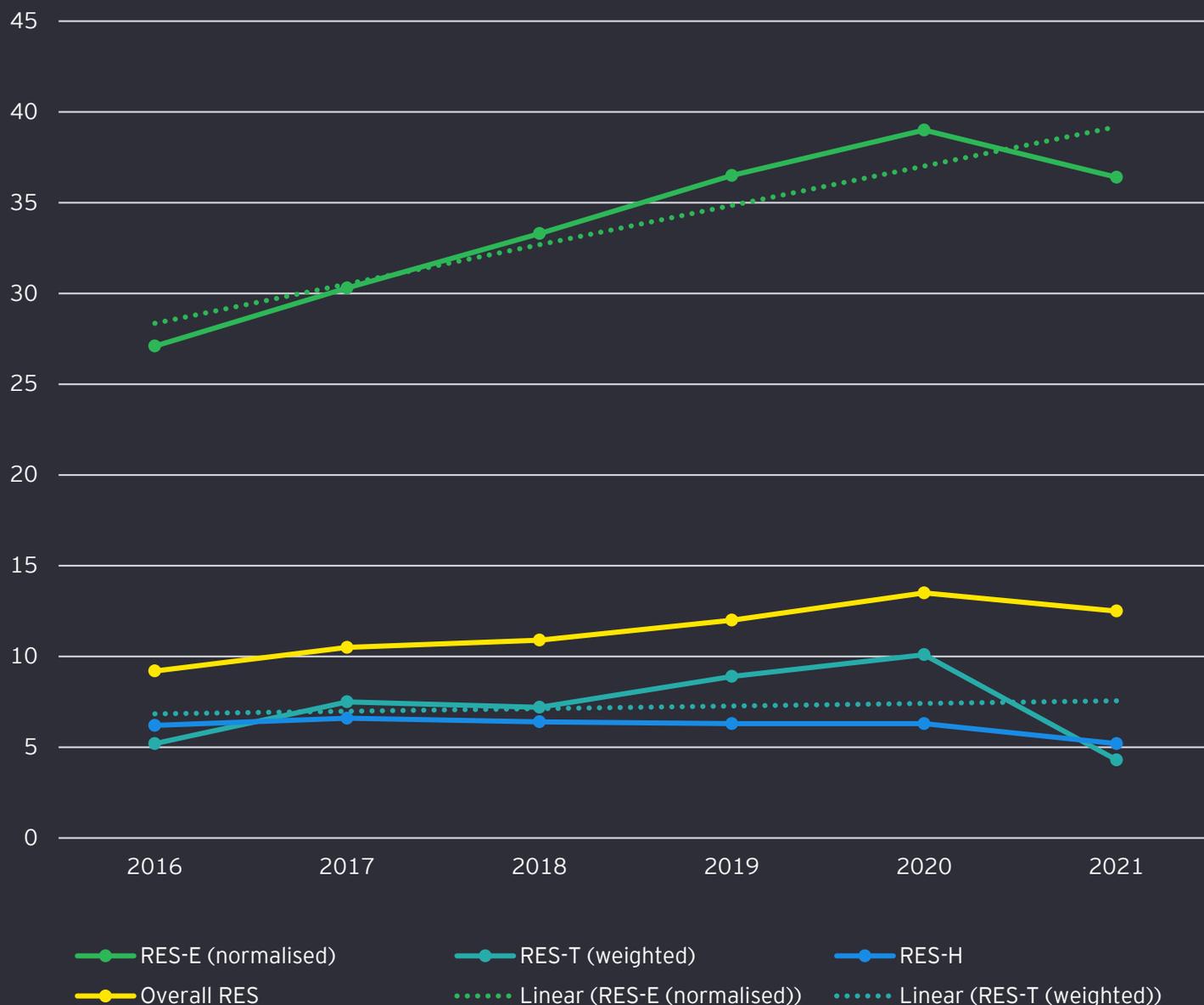
for renewable energy

amongst 62 nations that account for 92% of global greenhouse gas (GHG) emissions nations by the 2023 Climate Change Performance Index (CCPI)

	16	17	18	19	20	21	2030 Target
RES-(E)lectricity (normalised)	27.1	30.3	33.3	36.5	39.0	36.4	70
RES-(T)ransport (weighted)	5.2	7.5	7.2	8.9	10.1	4.3	14
RES-(H)eat	6.2	6.6	6.4	6.3	6.3	5.2	24
Overall RES	9.2	10.5	10.9	12.0	13.5	12.5	34.1

Source: Energy in Ireland Report 2022 (SEAI)

Ireland's progress towards overall renewable energy share (RES) target



Current investor sentiment

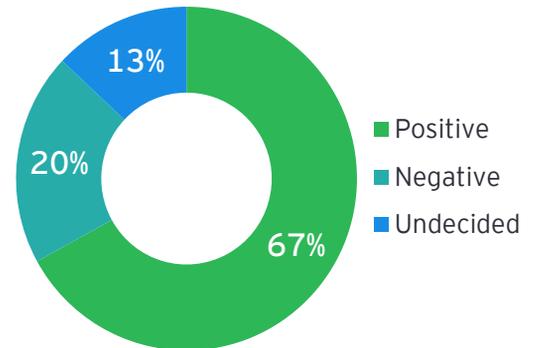
The disruption sweeping the energy and resources industry brings more opportunities than challenges — for companies that get ahead of the change.

From our conversations with market leaders, there is an overwhelming agreement that the energy transition market in Ireland is poised for significant growth over the next few years.

Potential investors expressed a high level of enthusiasm for the Irish market, specifically focusing on the strong advantages for renewable energy production, due to Ireland’s high wind yields and marine resources facilitating the possibility to accommodate significant offshore wind capacity. Investors also noted progressing development of interconnector infrastructure, the existence of a strong and stable regulatory environment as well as accessible sources of finance as key factors enhancing the attractiveness of the Irish market.

Investors, however, remain cautiously optimistic. Noting inefficient planning procedures, implementation delays, lack of resources in key delivery agencies and market size as the most prominent concerns when considering whether to enter the Irish market.

**Market Response:
Energy Transition Market in Ireland
(February 2023)**



**Market Response:
Areas of Identified Growth Potential
(February 2023)**



Reasons for optimism



Liquid debt market

Provides stable and copious funding to finance green project construction



Stable regulatory environment

Provides investors and investments with protection and shields against risk of financial losses from sudden or unpredictable regulatory change

Ireland's Potential

Geographical advantages provide unrivalled opportunities for growth



Political support

Cross party support provides a unified approach to the green transition



Sources: Market Research by EY Law Ireland and EY

Challenges from an investor's view

Government action

47%

of market leaders stated that more Government action is needed to fully open the sector.

Of the 47%

86%

attribute the current regulatory regime, specifically planning and grid policy, and lack of resources to significantly affect the speed of any growth and delay the progress of Ireland's transition.

Market size

20%

expressed concerns about the size of the Irish market

specifically noting

significant domestic appetite leading to market oversaturation

however, this has

not affected their intention to enter the Irish Market

Grid capacity

1 in 3

noted concerns relating to grid capacity and expansion

This is further exacerbated by the speed of connection and concerns whether sufficient resources have been allocated to support the transition.

Planning issues

The Government has acknowledged these challenges in the Climate Action Plan 2023 and have committed to expediate timeframes and remove barriers, recognising renewable energy generation as being in the overriding public interest.

Sources: Market Research by EY Law Ireland and EY



Government support for renewable energy

Renewable Electricity Support Scheme (RESS)

An auction-based scheme which invites renewable electricity projects to bid for capacity and receive a guaranteed price for the electricity they generate.

Provides financial support to renewable electricity projects in the Republic of Ireland.

Ireland received State Aid approval from the European Union to operate a Renewable Electricity Support Scheme (RESS) out to 2025.

Offshore Renewable Electricity Support Scheme (ORESS)

The Government recently approved the Terms and Conditions for the first offshore wind auction under the RESS.

It is anticipated that the auction will provide Ireland with a route to market for up to 2.5GW of offshore renewable energy to the domestic grid, capable of powering 2.5 million Irish homes with clean electricity.

Further Government Action

Biomethane

- ▶ Develop a National Biomethane Strategy to identify all necessary actions needed to achieve the 5.7 TWh
- ▶ Start-up of Teagasc biomethane anaerobic digestion pilot plant
- ▶ Identify and address research and knowledge gaps around supply of feedstocks, the role of digestate and the sequestration potential regarding biomethane production
- ▶ Seek financial opportunities for capital support for the development of biomethane industry in Ireland - 2024

Hydrogen

- ▶ Develop a policy/regulatory roadmap for green hydrogen use

Third Carbon Budget (2031-2035):

- ▶ Policies to ensure that zero carbon gases, like hydrogen, are utilised in the electricity sector to provide zero carbon dispatchable electricity at sufficient scale
- ▶ Policies to support the development of inter seasonal storage of hydrogen

Source: Climate Action Plan 2023

Government Commitments in 2023

The Department of the Environment, Climate and Communications (DECC) and the Department of Agriculture, Food and Marine (DAFM):

Deliver a National Biomethane Strategy within Q2

Department of Housing, Local Government & Heritage:

Prepare new draft Wind Energy Development Guidelines for onshore renewables, supported by the DECC

CRU/EirGrid/ESBN:

Ensure electricity generation grid connection policies and regular rounds of connection offers which facilitate timely connecting of renewables, provides a locational signal and supports flexible technologies



Development of infrastructure

Several cross-border interconnectors are under construction:

- ▶ Celtic Interconnector (Ireland - France): Allowing 700 MW (megawatts) of electricity to move between the countries
- ▶ Greenlink Interconnector (Ireland - Great Britain): Proposed 500 MW interconnector systems with the potential to power 380,000 homes
- ▶ Mares Interconnector (Ireland - Great Britain) Proposed 750MW interconnector system

Energy Storage

- ▶ Ireland has more than 2.5GW of grid-scale battery storage in development stages with six projects currently in progress.
- ▶ Consultation on developing an Electricity Storage Policy Framework for Ireland is currently under review by the government

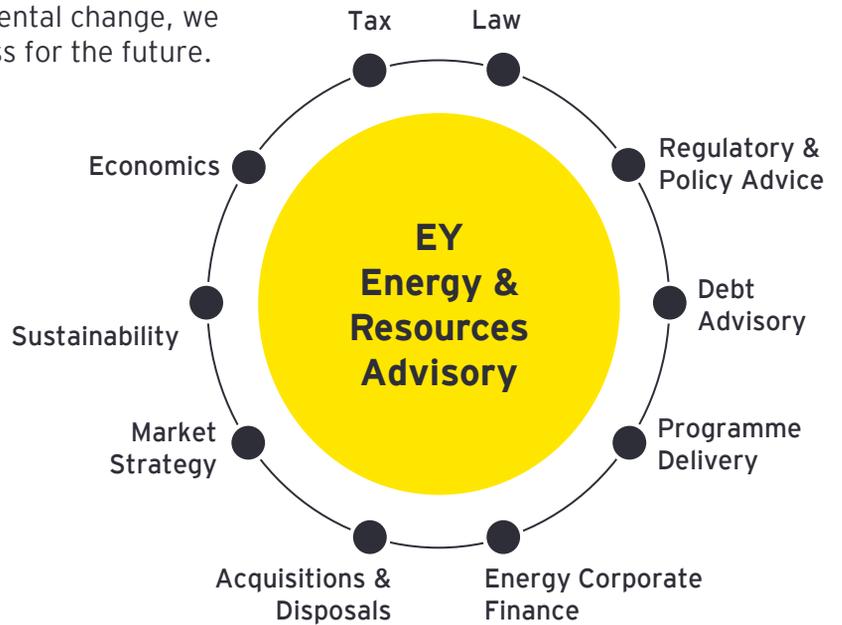
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EY helps energy and resource companies tackle this challenge. Our teams help you reshape your business by focusing on the structure, services, technologies and capabilities needed to meet commercial objectives today and create long-term value tomorrow. Together, we can unlock the opportunities of an uncertain future – and build a better working world.



Contact us

If you have any questions, or would like to discuss how your company is impacted by any of the topics in this publication, please get in touch with us, or with your EY contact.



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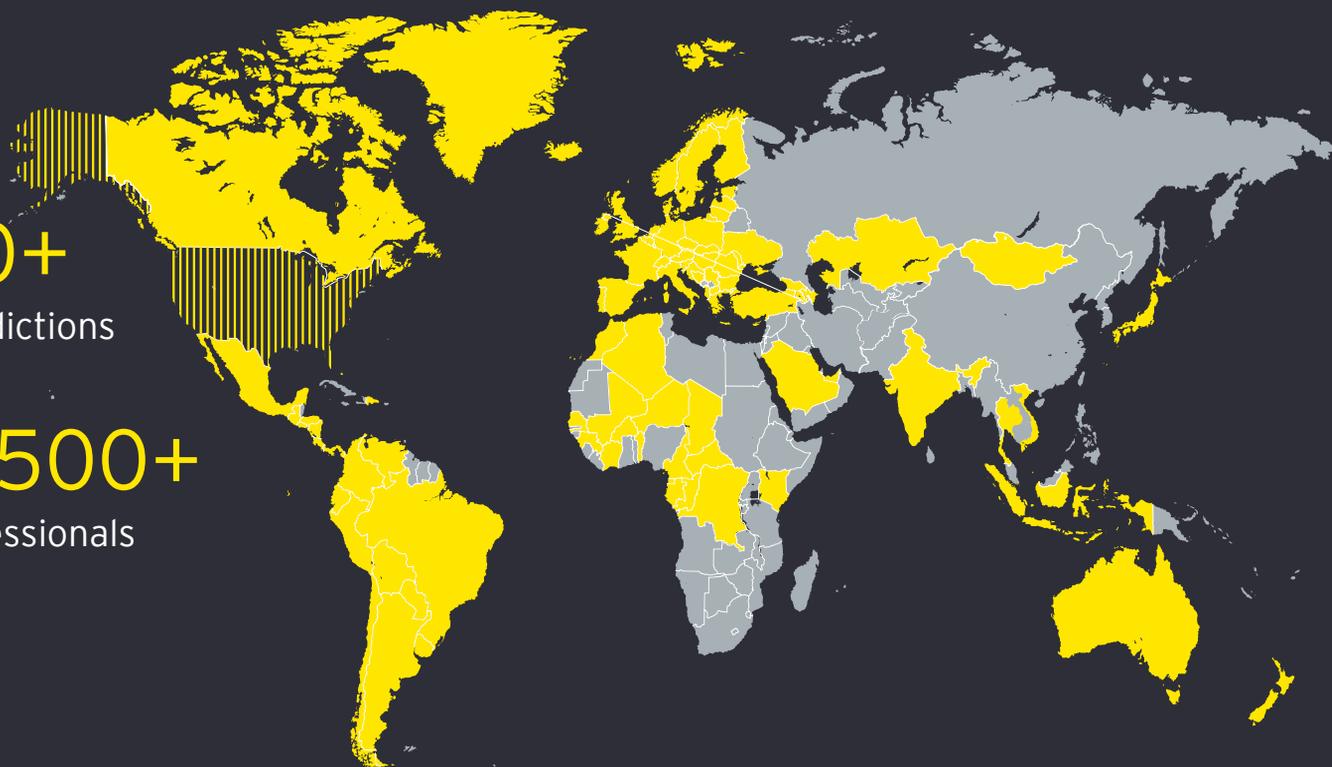
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