



Polish Australian Energy Dialogue

It is of the highest importance to recognise that climate change, and its consequence – the global temperature rise that we are currently experiencing, is a direct result of human activity. Every day, our actions are shaping the future of the next generations living on this planet.

The increase in global temperature is attributed to the accumulation of so-called greenhouse gasses (GHGs) in the atmosphere. These include carbon dioxide, methane, nitrous oxide and fluorinated gases. Human activity and rapid civil development over the last few decades have given rise to an imbalance in natural concentrations of GHGs in the atmosphere.

Globally, the electricity and heat generation sector accounts for roughly 30% of the total GHGs emissions, followed by 16% generated by transportation.¹ Therefore, decarbonising these two sectors are among the most important tasks of our times if we are to control and curtail the effects of Climate Change.

Global electricity generation has increased rapidly over the last few decades at an almost linear rate of 450 billion kilowatt hours per year,² with no sign that this trend will slow down in the foreseeable future. This is due to increases in both the number and wealth of the global population. Additionally, with the decreasing price of energy storage solutions, the electrification of the transport sector is expected to become more prominent over the next decade, shifting even more emissions to the electricity and heat production sector.

The growing need for supplying higher amounts of electricity, along with the consequences of its production, has forced people to search for alternative and more sustainable generation sources. This has led to incredible growth in the renewable energy industry, which currently accounts for generating roughly 26% of the global electricity demand.²

A rapid transition requires innovation and is very often based on unprecedented partnerships. The collaboration between The Banksia Foundation, The Polish Investment and Trade Agency (PAIH) and The Polish Australian Business Forum (PABF) was established to provide a communication and engagement platform between Poland and Australia within the emission reduction and energy areas. It aims to identify the synergies between these two countries and explore critical points of collaboration and technology exchange in the race to a Net Zero future.



Rising pressure

The first global initiative on the mitigation of climate change was adopted in 1992 in New York and enforced in 1994. The United Nations Framework Convention on Climate Change (UNFCCC), whose main objective is the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”³ was met with widespread support and signed by 195 and ratified by 189 Parties to the UNFCCC as of today.⁴ This document is the first official international expression of a globally shared will to reduce anthropological GHGs emissions.

Although only qualitative, the Framework gave a basis for creating the Kyoto Protocol in 1997, during the Third Conference of Parties (COP) as well as the Paris Agreement (PA), adopted in 2015, during the twenty-first COP. These two documents describe the process for Parties to declare their nationally determined contributions (NDCs) to the reduction of global GHG emissions and set a timeline for achieving them.

The Parties of UNFCCC committed to “Holding the increase in the global average temperature to well below 2°C above pre- industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change”.⁵ However, the PA does not impose any penalties on the Parties not meeting their NDCs, making their contribution to climate crisis mitigation entirely voluntarily.

In 2015, both Poland and Australia signed up to the PA, declaring clear targets on limiting the GHG emissions. In the Intended NDCs, Australia made the following commitment:

“...Australia will implement an economy-wide target to reduce greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030.”⁶

Similarly, Poland, as a Member State of the European Union committed to:

“...a binding target of an at least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990, to be fulfilled jointly, as set out in the conclusions by the European Council of October 2014.”⁷

Achieving these and future goals will require continuing strong and rapid action.



Sector overview

Both, Poland and Australia are countries with a long mining tradition and with the electricity generation sector being primary based on coal fire generation. Electricity generation has shown an upward trend in both countries over the last three decades.

Poland is currently the ninth largest coal producer in the world and the second largest, after Germany in the European Union (EU). Coal production is still of strategic importance to the Polish economy. In 2019 the coal production in Poland was comprised of lignite (50 million tonnes (Mt)) for power generation only, thermal coal (50 Mt) for use in both power generation and the industrial and residential sectors, and coking coal (12 Mt) for use in steel making. In total, Polish coal production represents 90% of the EU's hard coal and 16% of its lignite.⁸

Poland, like all European coal producers, has already started to feel the pressure of deteriorating market conditions for domestic coal and the shrinking of coal-fired power generation. This pressure is likely to intensify in the next decade. In 2019 Poland's coal production declined by 8% and continued to decrease in 2020 due to the Covid-19 crisis. The International Energy Agency (IEA) estimates that the economic recovery in 2021 is not expected to be able to reverse the falling trend.⁸

In 2019 hard coal imports to Poland reached a record 19.7 Mt comprised of deliveries from Russia (13.5 Mt), USA (1.5 Mt), Australia (1.5 Mt), and Colombia (1.4 Mt). In 2020, the Polish government halted coal imports by state-owned power producers and in September that year, the Polish government and trade unions reached an agreement to stop operations of two thermal coal mines by 2049. This marks the first coal phase-out plan declared in Poland. This decision has the potential to impact investment in mining, causing a further decline in coal production.⁹

In 2019, worldwide coal production increased by 1.5% to 7 953 Mt, and was driven mostly by countries in the Asia Pacific region including China, India and Australia. Coal production in Australia in 2019 was 550 Mt, a 3.4% increase from the previous year. Thermal coal accounted for 54%, metallurgical coal for 38% and 8% was lignite. The IEA estimates a considerable drop of about 9% for 2020. In the first-half of 2020 thermal coal production in Australia was boosted by high demand from China. However, exports to China declined in the second half of the year as import quotas tightened and customs clearance of Australian origin coal became more difficult. On the other side, thermal coal production in Australia is resilient, mostly due to its cost structure and guaranteed take-or-pay contracts. Low demand due to Covid-19 stimulated temporary mine closures in the second half of 2020: Peabody closed its Wambo mine in New South Wales for two months from July; and Glencore closed most of its mines for three weeks in September and October.⁸



Sector overview - continued

In terms of electricity generation, in 2020, total gross power generation in Poland was 157 terawatt hours (TWh) of which nearly 70% was generated from coal and 10% from gas. The renewable energy sources accounted for nearly 17% of the total generation, mostly driven by wind (15.7 TWh).¹⁰ In 2019, Poland also ranked fourth within the EU in terms of photovoltaics (PV) capacity growth.¹¹ However, the overall PV contribution to the electricity generation in Poland in 2020 still accounts for only 1.3% (2.1 TWh). The share of hydro energy is similarly low at 2.0 TWh or 1.3%. A generous net-metering scheme and declining investment costs have created an investment boom in distributed PV, especially in the Polish residential sector. Additionally, a new subsidy scheme was introduced in August 2019 that enables PV investors to receive government grants. With Poland's National Energy and Climate Plan aiming to double the country's share of renewables in electricity generation to 32% by 2030,¹² the Polish government is expected to implement new auctions and continue to support the net-metering scheme and other incentives for distributed PV.

Similar to Poland, Australia's electricity generation (total 258.5 TWh in 2019) is dominated by fossil fuels. Coal-fired electricity plants account for nearly 57% of the total generation (146.6 TWh) and gas generators add additional 52.4 TWh, roughly 20% of the total Australian electricity. The RE sector has undergone rapid growth, with the most recent numbers showing as much as 21-24% share of RE in the electricity market (depending on the source of data).^{10,13,14} This is driven by wind (19.7 TWh, 8% of total electricity generation), PV (17.5 TWh, 7%) and hydro (13.4 TWh, 5%). Despite policy uncertainty and technical challenges, Australia continues to observe a massive growth in large scale PV sector, nearly doubling in capacity every year over the last few years.

Most experts agree that in both countries, coal fired power stations may be expected to contribute a significant amount of electricity generation in the near term, but they will both come under increased pressure from emissions target constraints, community expectations and renewable energy improvements.



Sector overview - continued

Australia emits more GHGs when compared to Poland. According to the most recent reports from June 2020, the total GHG emissions in Australia were 513.4 MtCO₂e p.a. (including Land-Use, Land-Use Change and Forestry - LULUCF), showing a 3% decrease comparing to the previous year.¹⁵ In Poland, the most recent reports show the total of 379.9 MtCO₂e p.a. (including LULUCF), with a 2% increase comparing with a previous year.¹⁶ The countries significantly differ in size of the population (Poland 37.8 mil, Australia 25.7 mil). Per capita, Australians generate double the amount of GHG emissions per year when compared with Poles (19.9 tCO₂e p.a. and 10.1 tCO₂e p.a. respectively).

It comes as no surprise that the vast majority of GHG emissions produced in both, Poland and Australia come from electricity generation. In Poland, these account for 41% of all emissions (156.3 MtCO₂e p.a.). Other energy and heat generation activities (direct combustion of fuels, predominantly from the manufacturing, mining, residential and commercial sectors) account for additional 26% (98.2 MtCO₂e p.a.). These two categories are also major contributors to Australian total GHG emissions and are responsible for 33% (171.6 MtCO₂e p.a.) and 20% (102.5 MtCO₂e p.a.) respectively. In both countries transport is the third most carbon intensive industry, generating 17% (63.3 MtCO₂e p.a.) of the total in Poland and 18% (93.9 MtCO₂e p.a.) in Australia.^{15,16}

The spirit of global collaboration.

The partnership between the Banksia Foundation, the Polish Australian Business Forum and the Polish Investment and Trade Agency was established to provide a communication and engagement platform to identify and explore opportunities for collaboration between Poland and Australia in the energy transition and emissions reduction sectors.

It aims to explore the synergies between Poland and Australia, identify the critical points for collaboration and, thus, enable the technology exchange between these two countries. The Organisations work together in the spirit of bringing mutual economic and environmental benefits to the countries on their journey to achieving their 2030 targets and eventually Net Zero Carbon economies.

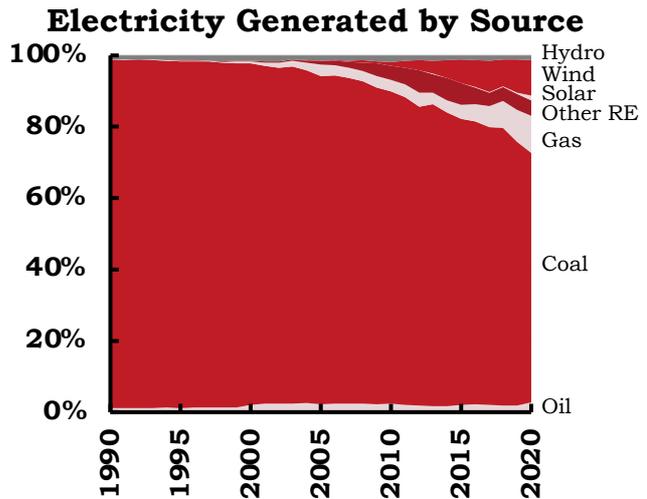


Poland

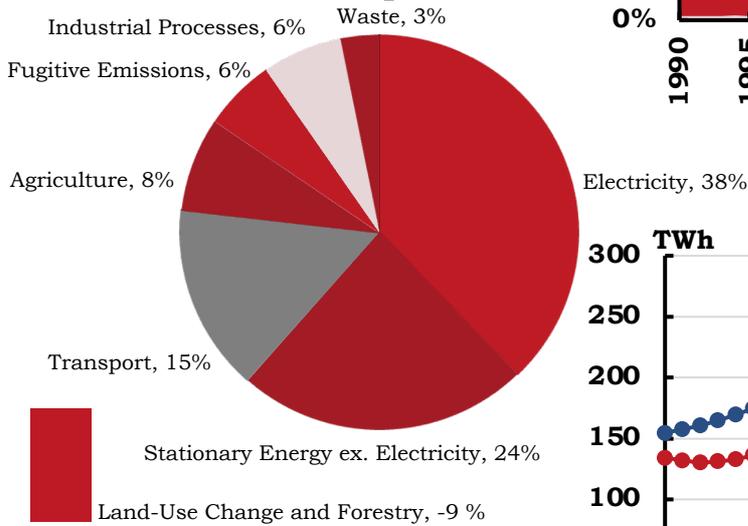
10
Tonnes of CO₂e
per capita
per year

17 %
Electricity
generated by RE

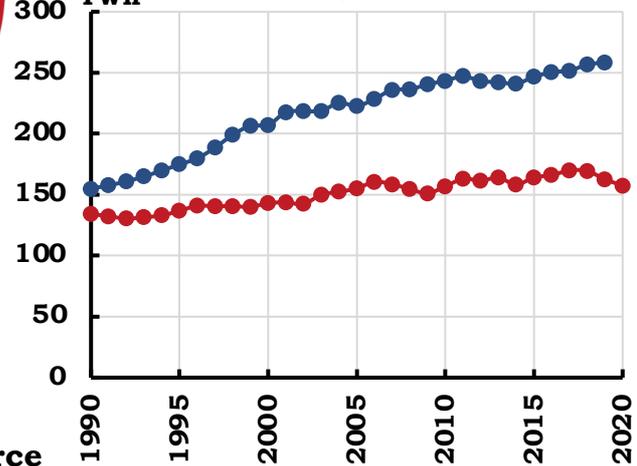
379.9
Tonnes of CO₂e
per year



GHG Emissions per Sector

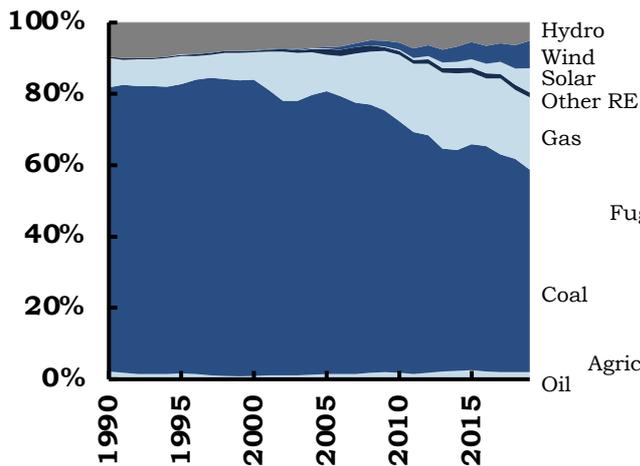


Electricity Generation



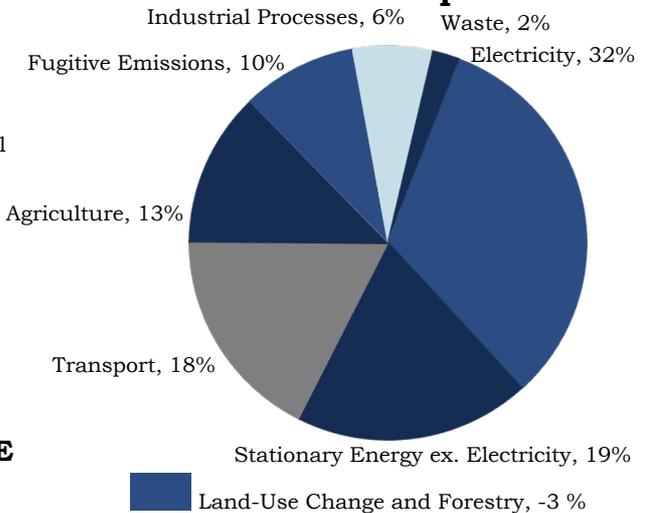
Australia

Electricity Generated by Source



513.4 Tonnes of CO₂e
per year

GHG Emissions per Sector



20
Tonnes of CO₂e
per capita
per year

24 %
Electricity
generated by RE



The Banksia Foundation is a well-established not-for-profit organisation dedicated to working with industry and community to create an array of platforms to focus attention on the recognition of excellence in sustainability. The Banksia Foundation was founded in 1989 by a diverse group of 44 Australians who shared a common goal to do more to support and recognise members of the community for their positive contribution to the environment. Today, Banksia is a strong and expanding brand, based on the integrity of the highly prized Banksia Awards and its activities. Their continued success is based on the partnerships developed with our sponsors, and the ability to be able to provide our sponsors with a practical and valuable marketing platform through recognising leadership and innovation amongst Australia's leading sustainability initiatives. The Banksia Foundation opens the door to a myriad of opportunities to make a real difference.



Polish Investment & Trade Agency (PAIH) New technologies have become a key element of the Polish economy. Relatively low wages, compared to Western Europe or the United States, as well a highly educated and skilled workforce, make Poland an attractive country in which to invest. On the other hand, Polish entrepreneurs more often decide to expand their companies abroad, particularly in the new technologies sector. The Polish Investment and Trade Agency (PAIH) supports both the foreign expansion of Polish business and the inflow of FDI into Poland. With almost 70 offices globally including one in Sydney, the Agency assists Australian companies in overcoming any issues related to specific projects and finding reliable partners and suppliers in Poland. It also supports in the transfer of Polish technologies to Australia. The environmental technologies and innovations are of key strategic importance in this activity.



Polish Australian Business Forum (PABF) is a non-for-profit organisation established in 2015 to create a platform for Polish professionals living in Australia. Today, as the voice of Polish-Australian business professionals, PABF's goal is to serve their best interests and help influence decisions and actions, which improve the economic strength of both countries. PABF has successfully built a space for discussion and knowledge exchange between Polish and Australian leaders to grow their businesses both in Australia and Poland. PABF is also at the forefront of encouraging and promoting the trade and investment agenda to benefit its members and community. Its goals include promoting their members businesses and enhancing trade and investment relations between Australia and Poland. PABF seeks to achieve its mission by fostering business, R&D and cultural connections between Poland and Australia. As an organization, PABF advocates its key values including transparency, corporate governance and sustainability as a competitive edge for building new business partnerships.



Webinar

April 29, 2021

10 a.m. Poland (CEST)

6 p.m. Australia (AEST)

Poland and Australia - Identifying Energy Transition Opportunities for Collaboration and Technology Exchange

Key discussion points:

- Energy and emissions reduction policies in Poland and Australia – overview of the global and national commitments;
- Breakdown of national emissions per sector and possible pathways to the Net Zero;
- Electricity sector overview and targets on renewable energy generation;
- Overview of technologies needed in the journey to the Net Zero;
- Synergies between Poland and Australia and critical points of collaboration.

Panel Chair Grażyna Van Egmond

CEO, The Banksia Foundation



As Chief Executive Officer of the Banksia Foundation for the past 20 years, Graz has guided this national not-for-profit organisation in the recognition, and encouragement of leadership and innovation towards a more sustainable Australia.

In 2018, Graz introduced an Innovation branch for the organisation through Banksia Ignite and introduced the UN Sustainable Development Goals as a basis for all the Banksia Foundation initiatives. These initiatives have helped to ensure that Australia continues to recognise, celebrate and be motivated by our leaders and innovators in the sustainability arena across all industry sectors and communities nationwide.





Panelist Chris Bolesta

The European Commission



Chris Bolesta is an European Commission official, co-founder and former vice-president of the Polish Electric Vehicles Foundation, former Director for Research at Polityka Insight – Polish analytical outfit, consultant and speaker. Between 2012 and 2015 member of private office of two Polish environment ministers and the COP19 President. He is a US Marshall Memorial Fellow and International Visiting Program Fellow.

Panelist Anna Skarbek

ClimateWorks Australia



Anna Skarbek is the CEO of ClimateWorks Australia, working to develop the low carbon economy. A former banker and green policy adviser, Anna has led ClimateWorks since its creation in 2009, analysing emissions reduction opportunities and partnering with business and government to unblock barriers to their implementation. ClimateWorks' independent and non-partisan approach, co-founded by The Myer Foundation and Monash University, sees her working with multiple federal government departments as well as State governments and large corporates. She works with other stakeholders including investors, business, environment and civil society leaders.

Closing remarks Philip Link

EnergyLink Services



Philip Link has over 15 years of experience in management consulting, advisory and assurance across vastly diverse interests within clean tech: from carbon management; energy efficiency; renewable energy and biofuels; sustainability & climate disclosure and economic & cost benefit analysis. He is currently the Managing Director of EnergyLink Services, a multidisciplinary renewable energy and energy efficiency consultancy and a developer of projects that empower the environment via development of solutions helping to transition the world to a low carbon future.



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