Proposed Ontario Framework for Facilitating Commercial & Industrial Buyer Investing and Transacting Corporate PPAs

Buyer ESG Investing and Transacting Corporate PPAs

March 17, 2022 – submission to IESO, re: CEC stakeholder engagement
(original report dated April 30, 2021 for confidential clients)

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POWER ADVISORY

I. Executive Summary

Executive Summary

- The main objective of this report is to propose a Framework to:
    - Directly enhance non-electricity and electricity investments made in Ontario by commercial and industrial (C&I) electricity customers ("Buyers");
    - Facilitate investments made by these Buyers towards helping to stimulate Ontario's economy;
    - Enable and facilitate these Buyers, as desired, to transact with electricity generators ("Suppliers") through Power Purchase Agreements (PPAs) ("Corporate PPAs") to meet their corporate objectives, their own supply needs, and/or lower their electricity costs;
    - Through the proposed Framework also help meet Ontario's electricity supply needs, and environmental goals and objectives; and
    - Leverage off existing frameworks from other jurisdictions (i.e., Canadian, U.S., Latin American, European, Asian) that more readily enable and facilitate Buyer investments and transactions for electricity supply through Corporate PPAs (compared to Ontario), as described in the above points.
- Considering the combination of economic downturn and lower electricity demand in Ontario today, the Framework proposed in this report to help facilitate Buyer investments, along with Buyers and Suppliers transacting Corporate PPAs, is very timely towards providing solutions to address Ontario's needs. The Framework will provide solutions to enable:
    - ✓ Ontario Government to launch a targeted initiative to directly secure new investments and job creation from Buyers;
    - ✓ Buyers to enhance management of their electricity costs and preferences of sources of electricity supply by mobilizing private capital and investments; and
    - ✓ Through new investments, Buyers will increase electricity demand within Ontario while decarbonizing.

Executive Summary

- Within Ontario's electricity market, traditional C&I electricity customers may qualify for participation within specific programs (e.g., Industrial Conservation Initiative) to help manage their electricity costs. Additional to these C&I customers, emerging Buyers from other sectors are increasingly becoming more active within electricity markets – most notably through managing their electricity costs, increasingly through transacting Corporate PPAs.

- For example, in addition to the 'traditional' C&I customers, the following example groups of Buyers are emerging as forces within electricity markets through their Corporate PPA transactions:
    - Technology companies – Facebook, Google, Microsoft, Amazon, etc.; and
    - Commercial retail companies – Walmart, IKEA, McDonald's, Starbucks, Best Buy, Home Depot, etc.

- The technology and commercial retail companies, as well as other sectors, are increasingly transacting Corporate PPAs with Suppliers for renewable energy supply for two main reasons:
    - Corporate environmental, social, governance (ESG) mandates and objectives, heavily driven by investors in these companies; and
    - Declining costs of renewable energy supply from wind and solar resources, which will likely be followed by similar cost declines for renewable energy enabling technologies (e.g., energy storage).

- ESG investment factors that have been increasingly embedded within capital markets are now simply making good 'business sense', relevant for financial valuations of companies, and leading to more sustainable financial markets and better outcomes for societies – therefore, ESG factors have been progressing to increasingly becoming essential in determining a company's success.

Executive Summary

- To meet the above listed solutions, two Tracks (“Track 1” and “Track 2”) within the Framework are proposed for Ontario.
    - Track 1 – enables Buyers to directly transact with Suppliers through contracts more commonly known as Virtual Power Purchase Agreements (VPPAs).
    - Track 2 – enables the Ontario government, through one of their government agencies (e.g., Independent Electricity System Operator (IESO), Infrastructure Ontario, Invest Ontario), to target economic development (e.g., investments, jobs, etc.) guarantees from Buyers, and then based on ESG corporate mandates and obligations separately procure renewable energy. Essentially, the government agency executes two sets of PPAs – with Buyers and separately with Suppliers.
- Technically, there’s no statute or rule not permitting Buyers and Suppliers from entering into VPPAs. However, an economic barrier does exist – which renders VPPAs uneconomic within Ontario’s electricity market today. The Global Adjustment (GA) electricity charge is this barrier, as GA is essentially a sunk cost and Buyers have no means to financially hedge or mitigate GA costs.
- Therefore, to enable Ontario to receive the economic development benefits of the Framework, and for Buyers to better manage their electricity needs and costs while meeting corporate ESG mandates and objectives, Ontario Regulation 429/04 (O. Reg. 429/04) will need to be amended to enable Buyers under VPPAs (Track 1) or PPAs (Track 2) to either not be charged GA or be charged a portion of GA.

Executive Summary

- With changes to O. Reg. 429/04, the following sectors present immediate potential for Buyers to explore transacting Corporate PPAs in Ontario towards meeting their corporate ESG mandates and objectives:
    - Technology;
    - Automotive;
    - Agriculture and Food Processing;
    - Financial Services; and
    - Commercial Retail.

1. Objectives of Report and Opportunities for Ontario

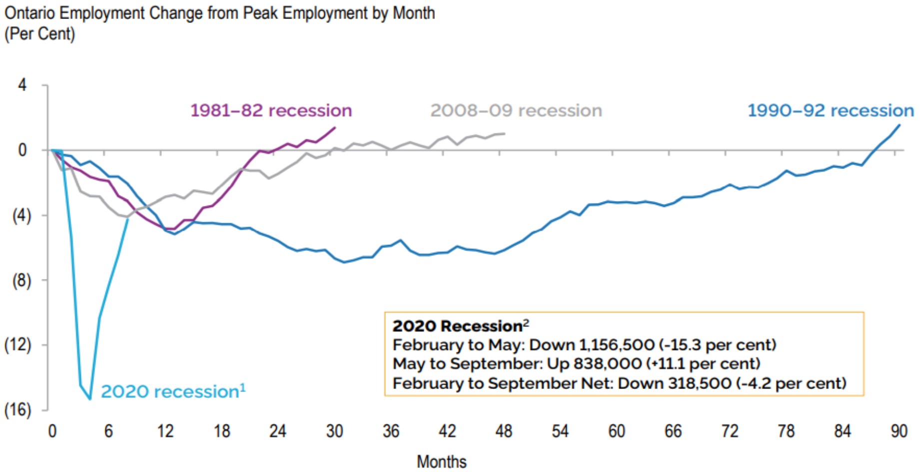
Objective of Report – Proposed Ontario Framework for Facilitating Commercial & Industrial Buyer Investing and Transacting Corporate PPAs

- The main objective of this report, *Proposed Ontario Framework for Facilitating Commercial & Industrial Buyer Investing and Transacting Corporate PPAs*, is to propose a Framework to:
    - Directly enhance non-electricity and electricity investments made in Ontario by C&I electricity customers (i.e., Buyers);
    - Facilitate investments made by these Buyers towards helping to stimulate Ontario's economy;
    - Enable and facilitate these Buyers, as desired, to transact with electricity generators (i.e., Suppliers) through Corporate PPAs to meet their corporate objectives, their own supply needs, and/or lower their electricity costs;
    - Help meet Ontario's electricity supply needs, additional to IESO procurement initiatives; and
    - Leverage off existing frameworks from other jurisdictions (i.e., Canadian, U.S., Latin American, European, Asian) that more readily enable and facilitate Buyer investments and transactions for electricity supply through Corporate PPAs (compared to Ontario), as described in the above points.

- The recommendations within this report regarding the proposed Framework to help facilitate non-electricity and electricity Buyer investments in Ontario, along with Buyers and Suppliers transacting Corporate PPAs within Ontario, will require:
    - Specific electricity market barriers to be addressed (solutions and rationale to address these barriers defined later in this report) by the Ontario Government; and
    - An Ontario Government agency to undertake an important administration role (defined later in this report) towards putting the Framework into action.

COVID-19 Negative Implications to Ontario’s Economy Presents Opportunities for Economic Stimulus

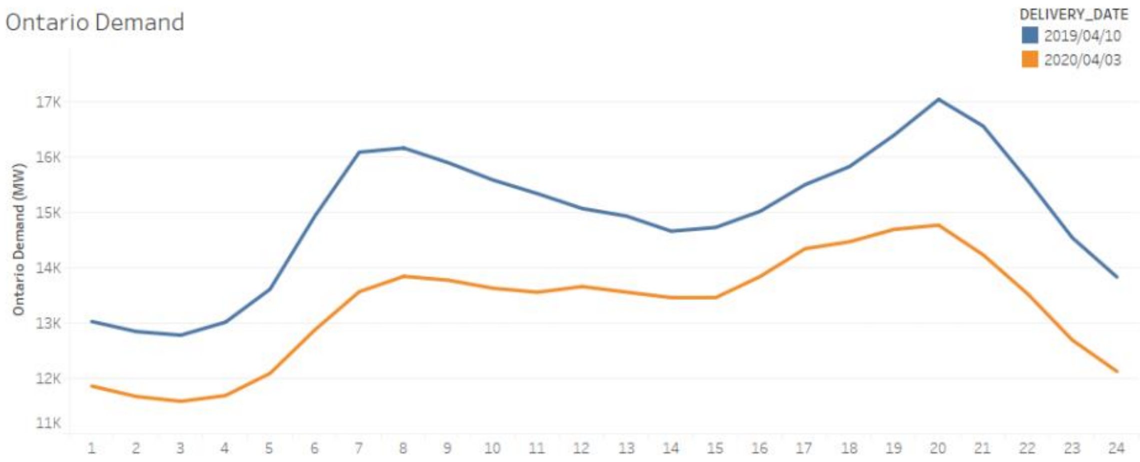
- Since early 2020, the COVID-19 pandemic has resulted in economic downturn. Back in Fall 2020, the Ontario Government had forecast real Gross Domestic Product (GDP) to decline by 6.5% in 2020. As necessarily required to address health needs and economic implications, on November 5, 2020, the Ontario Government released their budget, *Ontario's Action Plan: Protect, Support, Recover* (“Ontario’s Action Plan”), providing a comprehensive plan to respond to health and economic impacts of COVID-19. Ontario's Action Plan sets out $45 billion (CAD) in support over three years to make available necessary health resources to protect Ontarians, deliver critical programs and tax measures to support Ontarians and businesses impacted by COVID-19, and lay the groundwork for an economic recovery (see https://news.ontario.ca/en/release/59065/ontarios-action-plan-protect-support-recover).



Source: Ontario Government

COVID-19 Negative Implications to Ontario's Electricity Market Also Presents Opportunities for Economic Stimulus and Meeting Electricity Needs

- The combination of impacts from COVID-19 and economic downturn have lowered electricity demand in Ontario. In Spring 2020, the Independent Electricity System Operator (IESO) reported that overall electricity demand in Ontario fell between 10% to 12%. During that same time, electricity demand from industrial customers directly connected to Ontario's bulk transmission grid fell between 13% to 26%, and even more impactfully electricity demand fell from commercial customers approximately 80% (see https://ieso.ca/en/Sector-Participants/IESO-News/2020/04/COVID-19-impacts-on-Ontarios-electricity-system).



Source: IESO

COVID-19 Negative Implications to Ontario's Economy and Electricity Market Presents Opportunities for Economic Stimulus

- Considering the combination of economic downturn and lower electricity demand, the Framework proposed in this report to help facilitate Buyer investments, along with Buyers and Suppliers transacting Corporate PPAs, is very timely towards providing solutions to address Ontario's needs.

- The Framework will provide solutions to enable:
  - ✓ Ontario Government to launch a targeted initiative to directly secure new investments and job creation from Buyers;
  - ✓ Buyers to enhance management of their electricity costs and preferences of sources of electricity supply by mobilizing private capital and investments; and
  - ✓ Through new investments, Buyers will increase electricity demand within Ontario while decarbonizing.

- Ontario should build upon recent announcements made by GM, as examples of policies and actions to create economic stimulus, while building on investments and corporate objectives of Buyers.
  - On January 15, 2021, GM announced $1 billion (CAD) investment to produce BrightDrop electric light commercial vehicle (EV600) to its manufacturing plant in Ingersoll, Ontario. This will support jobs and transform the plant to produce EV600s, serving the growing North American electric delivery solutions market. (see https://plants.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2021/jan/0114-cami.html)
  - On January 28, 2021, GM announced plans to become carbon neutral in its global products and operations by 2040, and has committed to setting science-based targets to achieve carbon neutrality. GM also signed the Business Ambition Pledge for 1.5ºC (i.e., call to action from a global coalition of United Nation agencies, business and industry leaders). GM also worked with the Environmental Defense Fund to develop a shared vision of an all-electric future and aspirations to eliminate tailpipe emissions from new light-duty vehicles by 2035. (see https://plants.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2021/jan/0128-carbon.html)

2. Changing Market Conditions and Commercial & Industrial Buyer Business and Investment Objectives

Emergence and Growing Impact of ESG on Capital Markets, Investors, Corporations

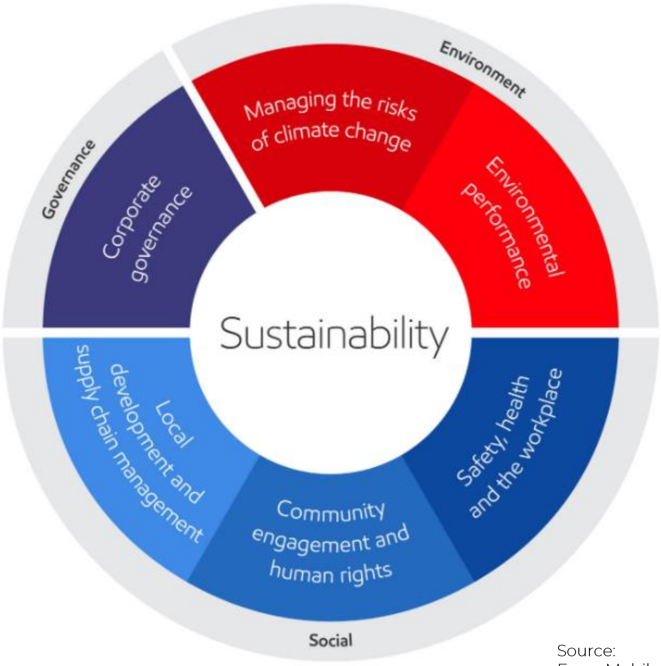
- Since the term was first developed in the 2004/05 timeframe by The World Bank Group's International Finance Corporation, ESG factors have become globally accepted and integrated in responsible investing within capital markets with tangible financial relevance and implications.
    - See *Who Cares Wins – Connecting Financial Markets to a Changing World*, https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_report_whocareswins__wci__1319579355342

- ESG investment factors that have been increasingly embedded within capital markets are simply making good 'business sense', relevant for financial valuations of companies, and are leading to more sustainable financial markets and better outcomes for societies and their citizens.

- Going back to the 2013/14 timeframe, many studies began showing the following, but not limited to, positive impacts of ESG investing:
    - Good corporate sustainability performance is associated with good financial results;
    - Importance of ESG information for assessing corporate risks, strategies, and operational performance; and
    - Investors who integrate corporate ESG factors can improve capital returns.
        - For studies, see https://arabesque.com/research/From_the_stockholder_to_the_stakeholder_web.pdf, https://www.hbs.edu/ris/Publication%20Files/SSRN-id1964011_6791edac-7daa-4603-a220-4a0c6c7a3f7a.pdf

- Therefore, ESG factors have been progressing to increasingly becoming essential in determining a company's success.

Example – ExxonMobil ESG Factors and Sustainability Business Objectives within a Global Oil and Gas and Chemical Company



Source: ExxonMobil

- “ExxonMobil committed to producing energy and chemical products that are essential … in a way that helps protect people, the environment and the communities where we operate. This includes mitigating the risks of climate change. Meeting this dual challenge will be even more important in the coming decades as growing populations and global economic expansion are expected to drive energy demand higher.“

- “ExxonMobil’s *Sustainability Report* includes qualitative descriptions and quantitative metrics to describe our ESG practices and performance.”

- See the *Sustainability Report* at https://corporate.exxonmobil.com/Sustainability/Sustainability-Report

By the Numbers – ESG Factors Significantly Impacting Capital Markets and Business Objectives/Strategies of Companies

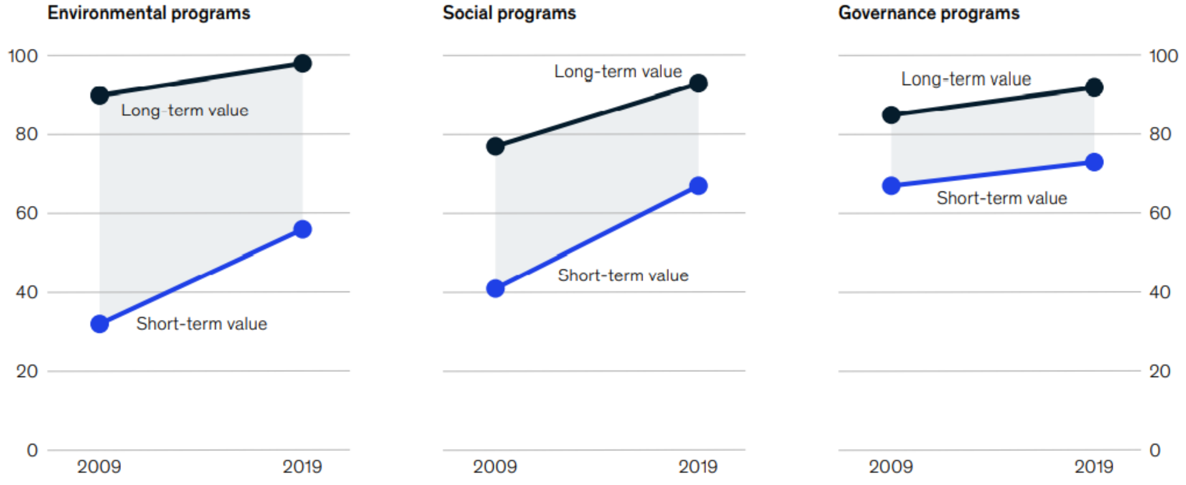
- In 2019, KPMG reported findings on ESG investing:
  - "… global trend towards responsible investing. Increasingly, institutional investors are recognising the potential for ESG factors to affect the valuation and financial performance of the companies they invest in. At the same time, consumer demand for responsible investments is surging … "Responsible" or "sustainable" finance and a focus on … ESG … have moved firmly into the mainstream today … Investors want to balance risk and return and 'doing the right thing'. Governments and regulators are concerned for long-term economic and social stability. Asset managers and asset owners see ESG and responsible investment as a smart way to achieve competitive advantage."
  - $30 trillion (USD) – globally, sustainable investing in five major markets, representing 34% increase in two years;
  - 71% – CEOs feel it is their personal responsibility to ensure their organization's ESG governance policies reflect values of their customers; and
  - 55% – CEOs believe their organizations must look beyond purely financial growth to achieve long-term and sustainable success.
    - For KPMG report, see https://assets.kpmg/content/dam/kpmg/ie/pdf/2019/10/ie-numbers-that-are-changing-the-world.pdf
- In 2020, McKinsey reported findings on ESG investing:
  - 83% – executives and investment professionals say they expect ESG programs will contribute more shareholder value in five years than today;
  - 10% – median premium amount executives and investment professionals indicated they would be willing to pay to acquire a company with a positive record for ESG issues over one with a negative record; and
  - 57% – executives and investment professionals agree ESG programs create shareholder value.
    - For McKinsey report, see https://www.mckinsey.com/business-functions/sustainability/our-insights/the-esg-premium-new-perspectives-on-value-and-performance

By the Numbers – ESG Factors Significantly Impacting Capital Markets and Business Objectives/Strategies of Companies

- McKinsey survey results (2020) – changes between 2009 and 2019

Among respondents who say ESG programs create value, the share seeing short- and long-term value has grown.

Share of respondents who say given program creates value, %[1]



[1] Question was asked only of respondents who said environmental, social, and governance programs increase shareholder value. Respondents who said "substantially negative," "negative," or "no effect" are not shown; total n = 136 in 2009 and n = 342 in 2019.

Source: McKinsey & Company

ESG Factors Increasingly Driving Significant Impacts on Capital Markets and Business Objectives/Strategies of Companies

- BlackRock is one of the world's largest global asset management and technology services firms, with a market capitalization of over $107 billion (USD). In his 2021 letter to CEO's this past January, BlackRock's Chairman and CEO, Larry Fink, raised the following points regarding ESG factors and investments within capital markets:
  - "No issue ranks higher than climate change on our clients' lists of priorities";
  - "… January of last year, I wrote that climate risk is investment risk. I said then that as markets started to price climate risk into the value of securities, it would spark a fundamental reallocation of capital … pandemic [COVID-19] took hold … reallocation of capital accelerated even faster …";
  - "… January through November 2020, investors in mutual funds and ETFs invested $288 billion [USD] globally in sustainable assets, a 96% increase over the whole of 2019 … beginning of a <u>long but rapidly accelerating transition</u> … We know that climate risk is investment risk … climate transition presents a historic investment opportunity"; and
  - "Essential to this transition … growing availability and affordability of sustainable investment options … creation of sustainable index investments has enabled a massive acceleration of capital towards companies better prepared to address climate risk".
    - For Larry Fink's letter, see https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter
- In November 2020, Enbridge, one of Canada's largest energy companies, announced new ESG goals and objectives (see https://www.enbridge.com/media-center/news/details?id=123647&lang=en):
  - Net zero target by 2050, 35% reduction in greenhouse gas (GHG) emissions intensity by 2030;
  - Accelerated diversity representation in the workforce; and
  - Incentive compensation linked to progress on ESG targets and goals.

ESG Factors Increasingly Driving Significant Impacts on Capital Markets and Business Objectives/Strategies of Companies

- On November 25, 2020, the CEOs of Canada's eight leading pension plan investment firms, representing approximately $1.6 trillion (CAD) in assets under management, announced joining forces to help shape a future defined by more sustainable and inclusive economic growth.
  - See joint statement at https://mma.prnewswire.com/media/1341331/British_Columbia_Investment_Management_Corporation__BCI__CEOs_of.pdf?p=pdf

- In their joint statement, the Presidents & CEOs of AIMCo, BCI, Caisse de dépôt et placement du Québec, CPP Investments, HOOPP, OMERS, Ontario Teachers' Pension Plan, and PSP Investments called on companies and investors to provide consistent and complete ESG information to strengthen investment decision-making and better assess and manage their collective ESG risk exposures.

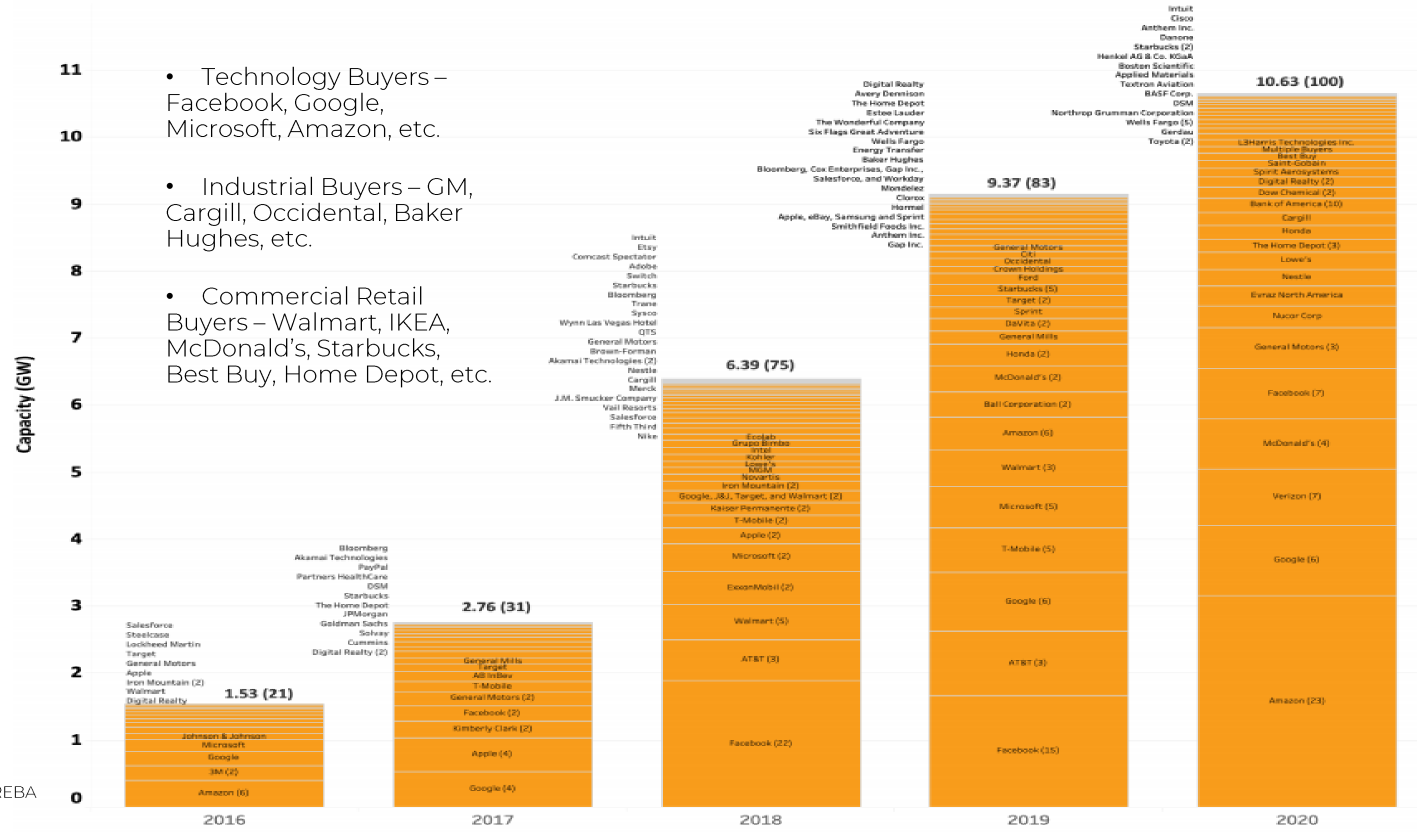
- These signatory Canadian pension plan investment firms further committed to strengthening ESG disclosure within their own companies and to allocate capital to investments best placed to deliver long-term sustainable value creation. The signatories also acknowledged recognition that while companies face a myriad of disclosure frameworks and requests, it is vital that they report relevant ESG data in a standardized way to provide clarity and improve data flow. They asked that companies measure and disclose their performance on material, industry-relevant ESG factors by adopting the Sustainability Accounting Standards Board standards and the Task Force on Climate-Related Financial Disclosures framework.

Emerging Buyers of Electricity Supply are Increasingly Becoming 'Active' Within Electricity Markets

- Within Ontario's electricity market, C&I electricity customers have traditionally been defined as industrial customers who produce commodities (e.g., steel, etc.) and manufacture products (e.g., pulp and paper, automotive, etc.). However, in additional to these C&I customers, emerging Buyers from other sectors of the economy are increasingly becoming more active within electricity markets – most notably through using technologies to help manage their electricity consumption and optimize when electricity is used, increasingly through transacting Corporate PPAs.
  - Therefore, Ontario C&I customers should have the option to transact Corporate PPAs and/or participate in specific programs (e.g., Industrial Conservation Initiative (ICI), etc.).
- For example, in addition to the 'traditional' C&I customers identified above, the following groups of Buyers are emerging as forces within electricity markets through their Corporate PPA transactions:
  - Technology companies – Facebook, Google, Microsoft, Amazon, etc.; and
  - Commercial retail companies – Walmart, IKEA, McDonald's, Starbucks, Best Buy, Home Depot, etc.
- The emerging technology and commercial retail companies are increasingly transacting Corporate PPAs with Suppliers for renewable energy supply for two main reasons:
  - Corporate ESG mandates and objectives, heavily driven by investors in these companies; and
  - Declining costs of renewable energy supply from wind and solar resources, which will likely be followed by similar cost declines for renewable energy enabling technologies (e.g., energy storage).
- The subsequent pages and Appendix provides more detailed information on Buyers that have transacted Corporate PPAs in U.S. and Canada. The reported global volume of Corporate PPAs is included within the first page of the Appendix.

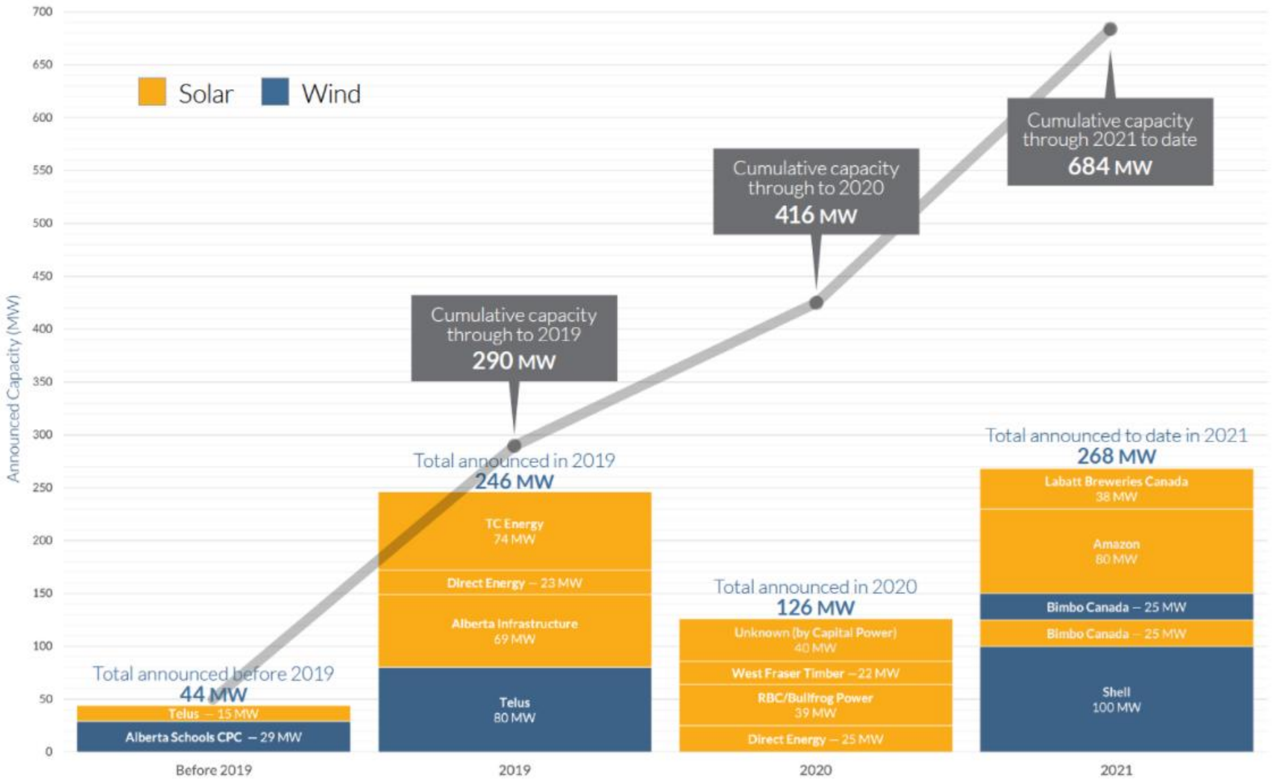
U.S. Buyers Transacted Corporate PPAs for Renewable Energy (2016-2020)

- Technology Buyers – Facebook, Google, Microsoft, Amazon, etc.
- Industrial Buyers – GM, Cargill, Occidental, Baker Hughes, etc.
- Commercial Retail Buyers – Walmart, IKEA, McDonald's, Starbucks, Best Buy, Home Depot, etc.



Source: REBA

Canadian Buyers Transacted Corporate PPAs for Renewable Energy (2018-2021 to date) – All Corporate PPAs Transacted in Alberta



Source: BRC Canada

April 2021 Banner Month for Announced Renewable Energy Corporate PPAs in Alberta – Reflecting Diversity of Buyers

- On April 8, Shell Energy and BluEarth Renewables announced Corporate PPA directly supporting construction of the 130 MW Hand Hills Wind Project, where Shell Energy will purchase renewable electricity and associated emission offsets from 100 MW of the Project's capacity.
    - See https://bluearthrenewables.com/shell-ppa/

- On April 13, Bimbo Canada and RES announced two Corporate PPAs. The Corporate PPAs will support development of two wind and solar energy projects, totaling 170 MW. Bimbo Canada will procure approximately 50 MW of renewable electricity to offset electricity consumption for its 16 bakeries, 14 distribution centres and 191 depots, which will offset 100% of the company's electricity consumption in Canada.
    - See https://www.newswire.ca/news-releases/bimbo-canada-signs-agreements-to-offset-100-per-cent-of-its-electricity-consumption-for-canadian-operations-867561604.html

April 2021 Banner Month for Announced Renewable Energy Corporate PPAs in Alberta – Reflecting Diversity of Buyers

- On April 19, Amazon and Greengate announced a Corporate PPA, where Amazon will invest in the 80 MW Amazon Solar Farm energy project, representing the first of its kind for Amazon in Canada. Amazon has now invested in 206 renewable energy projects around the world. These developments and other Amazon renewable energy initiatives will supply renewable electricity to its fulfillment centres, corporate offices, data centres, and its Whole Foods Market stores.
  - See https://calgaryherald.com/opinion/columnists/varcoe-the-tip-of-the-iceberg-as-amazon-and-labatt-sign-renewable-power-deals-in-alberta

- On April 19, Budweiser Canada (Labatt Breweries of Canada parent co.) and Capital Power announced a Corporate PPA for approximately 51% of electricity generated by the Enchant Solar project, and approximately one-quarter will be bundled with project-generated Renewable Energy Credits (RECs) and three-quarters will be bundled with RECs sourced elsewhere in Canada. This milestone development is the next chapter in Anheuser Busch InBev's (Budwesier parent co.) global sustainability strategy in which Labatt Breweries of Canada plays a significant role, and specifically the Budweiser brand's commitment to produce every beer it brews using 100% renewable electricity.
  - See https://www.newswire.ca/news-releases/labatt-and-capital-power-announce-partnership-that-advances-budweiser-s-100-renewable-electricity-commitment-806293466.html

3. Opportunities for Ontario Commercial & Industrial Buyer Investing and Electricity Market

Buyers Driven by ESG Mandates and Objectives Present Investment Opportunities within Ontario

- As discussed within previous sections of this report, increasingly Buyers are incorporating ESG factors within their business strategies and investment decisions. For example, Buyers with environmental mandates and objectives are exponentially transacting Corporate PPAs with Suppliers for renewable energy (see Appendix for exponential global growth in Corporate PPAs).

- This dynamic represents economic development opportunities within Ontario to enable new investments and job creation.

- And tied to these economic development opportunities due to investments made by Buyers, some of Ontario's future electricity supply needs could be partially met through Buyers securing renewable energy from Suppliers. Not only does this help to meet future electricity supply needs in Ontario, a Framework to enable multiple Buyers and Suppliers voluntarily transacting Corporate PPAs will bring much needed additional competition to Ontario's electricity market, and will help Ontario become more environmentally responsible (e.g., moving towards 'net zero' GHG emissions, as has been declared as a policy objective in many other jurisdictions).

- The following pages provide some potential examples of economic development opportunities combined with helping to meet Ontario's future electricity supply needs and increasing competition within Ontario's electricity market.
    - Further examples of Buyers, including their ESG goals and objectives and transactions of Corporate PPAs for renewable energy, are included within the Appendix.

Technology Sector Opportunities for Economic Development and Electricity Supply within Ontario

- On January 9, 2020, Microsoft Canada announced the largest expansion of its Canadian-based cloud computing infrastructure since the launch of two Canadian cloud datacentre regions in 2016. This investment will help businesses have greater access to new innovations that will accelerate business development and builds on Microsoft's significant presence in Canada.
  - See https://www.newswire.ca/news-releases/microsoft-makes-significant-investments-in-canadian-cloud-to-fuel-innovation-in-canada-851472188.html
- Microsoft Canada's investment will result in Ontario-based datacentres, which will result in new electricity demand in Ontario.
- As seen in the graph in the proceeding section of this report, Microsoft has been one of the most aggressive Buyers transacting Corporate PPAs for renewable energy supply. These Corporate PPAs help fulfill Microsoft's ESG mandate and obligations to be carbon negative by 2030 and by 2050 remove from the environment all carbon Microsoft has emitted since it was founded in 1975.
  - See https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/

Technology Sector Opportunities for Economic Development and Electricity Supply within Ontario

- Additional to Microsoft, other technology companies have business interests in Ontario. The following global technology companies have made investments in Ontario over the last few years, have corporate ESG mandates and objectives relating to lowering GHG emissions, and have transacted Corporate PPAs with Suppliers for renewable energy:
    - Amazon;
    - Google;
    - Facebook;
    - Apple; and
    - Shopify.
- Additional to corporate ESG mandates, Microsoft, Google, Facebook, and Apple are members of RE100 (see https://www.there100.org/). RE100's mission is to accelerate change towards zero carbon electricity systems towards 100% renewable energy. Of note, GM is also a member of RE100.
- In fact, this past February, one of the above listed technology companies released an invitation-only Request for Proposals for renewable energy supply at their Toronto and Calgary locations. This procurement of renewable energy will result in contracts between this Buyer and selected Suppliers.
- As seen by the transacted Corporate PPAs in the U.S. found in the previous section of this report and Appendix, the global technology companies are leading the way in transacting Corporate PPAs for renewable energy from Suppliers. Therefore, this represents economic development opportunities for Ontario.

Automotive Sector Opportunities for Economic Development and Electricity Supply within Ontario

- As listed in the first section of this report, on January 15, 2021, GM announced $1 billion (CAD) investment to bring production of its recently announced BrightDrop electric light commercial vehicle (EV600) to its CAMI manufacturing plant in Ingersoll, Ontario. And on January 28, 2021, GM announced plans to become carbon neutral in its global products and operations by 2040 and has committed to setting science-based targets to achieve carbon neutrality.

- As seen in the graph in the proceeding section of this report, GM has transacted Corporate PPAs for renewable energy supply in the U.S. These Corporate PPAs help fulfill GM's ESG mandate and obligations as described above.
  - For example, on September 30, 2020, GM announced a Corporate PPA for a solar energy from a generation project to be developed in Arkansas, the equivalent of about 47,882 U.S. homes' electricity use for one year. This Corporate PPA marked a major milestone for GM – surpassing 1 GW in renewable energy use. As of October 2020, GM ranked 11th as one of the largest Buyers of renewable energy in the U.S., and the largest Buyer in the manufacturing sector.
    - See https://plants.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2020/sep/0930-sustainability.html

Automotive Sector Opportunities for Economic Development and Electricity Supply within Ontario

- Additional to GM, other automotive companies have manufacturing businesses in Ontario. These following companies have corporate ESG mandates and objectives relating to lowering GHG emissions, and have transacted Corporate PPAs with Suppliers for renewable energy:
  - Ford;
  - Honda; and
  - Toyota.

- For example, on September 28, 2020, Ford announced a $1.8 billion (CAD) investment to build new battery electric vehicles (BEV) at their Oakville Assembly Complex. Ford is committing to transform its Oakville Assembly Complex from an internal combustion engine site to also become a BEV manufacturing facility, starting in 2024, as well as introducing a new engine program at its Windsor operations.
  - See https://media.ford.com/content/fordmedia/fna/ca/en/news/2020/09/28/ford-commits-to-investing-1-8-billion.html

- Considering the recent announcements made by GM and Ford for Ontario-based investments, along with their ESG corporate mandates and objectives and transactions of Corporate PPAs in the U.S., the automotive sector represents further economic development opportunities for Ontario – even more so considering their ineligibility for the ICI program.

Potential for Other Sectors to Provide Opportunities for Economic Development and Electricity Supply within Ontario

- The following other sectors represent potential economic development opportunities in Ontario in combination with additional electricity supply through Buyers and Suppliers transacting Corporate PPAs to help meet future supply needs:
    - Agriculture and Food Processing – investments have been increasing, with outcomes of increasing agricultural electricity demand (particularly in western Ontario);
    - Mining – significant investment opportunities exist mostly located in northern Ontario, relative to all industrial businesses the mining sector is Ontario's largest electricity demand sector;
    - Metals – only second to mining, metals (e.g., steel, etc.) are a large electricity demand industrial;
    - Chemicals and Petroleum – along with these sectors, specific economic development opportunities could be targeted based on municipalities and geographic locations (e.g., 'chemical valley' in Sarnia and surrounding areas, etc.);
    - Financial Services – RBC has transacted a Corporate PPA in Alberta, and other banks (e.g., CIBC, HSBC, etc.) have adopted ESG mandates and objectives;
    - Telecommunications – Telus has transacted a few Corporate PPAs in Alberta, maybe potential for Rogers and Bell to follow; and
    - Commercial Retail – Loblaws, Canadian Tire, and IKEA have all invested in solar energy in Ontario.
- Additional to specific sectoral economic development opportunities and additional electricity supply through Corporate PPAs, hydrogen investment opportunities could be integrated within the Framework.

4. Proposed Framework for Commercial & Industrial Buyer Investing and Corporate PPAs

Framework for Commercial & Industrial Buyer Investing and Corporate PPAs Must be Ontario Specific

- As stated earlier within this report, the Framework will provide solutions to enable:
  - ✓ Ontario Government to launch a targeted initiative to directly secure new investments and job creation from Buyers;
  - ✓ Buyers to enhance management of their electricity costs and preferences of sources of electricity supply by mobilizing private capital and investments; and
  - ✓ Through new investments, Buyers will increase electricity demand within Ontario while decarbonizing.
- To meet the above listed solutions, two Tracks (Track 1 and Track 2) within the Framework are proposed for Ontario.
  - o Track 1 – enables Buyers to directly transact with Suppliers through contracts more commonly known as VPPAs (i.e., form of Corporate PPA). As discussed in Section 3 of this report, transactions through VPPAs are increasing exponentially and globally (led by the U.S., with activity in Alberta). Buyers continue investing within their core businesses (e.g., big technology, communications, manufacturing, commercial and retail, etc.) while meeting parts of their ESG corporate mandates and obligations through contracting for renewable energy (including RECs) (i.e., Environmental Attributes (EAs)) and/or other renewable energy enabling technologies (e.g., energy storage).
  - o Track 2 – enables the Ontario government, through one of their government agencies (e.g., Infrastructure Ontario, Invest Ontario), to target economic development (e.g., investments, jobs, etc.) guarantees from Buyers, and then based on ESG corporate mandates and obligations separately procure renewable energy (including RECs) and/or other renewable energy enabling technologies from Suppliers. Essentially, the government agency executes two sets of PPAs (i.e., Corporate PPAs) – with Buyers and separately with Suppliers.
    - ▪ There is potential for the Ontario government agency to access funding from the Canadian government to support administration of the Framework, considering funds available through the Clean Climate Plan (see https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/climate-plan/healthy_environment_healthy_economy_plan.pdf) and/or Canada Infrastructure Bank Growth Plan (see https://cib-bic.ca/en/partner-with-us/growth-plan/).

Framework Structure and Design is Ontario Specific and Based on Success in Many Other Jurisdictions

- The proposed Framework for Ontario is based on success of both Track 1 and Track 2 within other jurisdictions.
- Regarding Track 1, VPPAs have been transacted within the following select jurisdictions:
  - Canada (e.g., Alberta);
  - U.S. (i.e., most states, especially states within wholesale electricity markets);
  - Europe (i.e., most countries);
  - Asia (e.g., India); and
  - Latin America (e.g., Mexico).
- Regarding Track 2, PPAs, enabled by either government agencies or electric utilities, have been transacted with the following jurisdictions:
  - Canada (i.e., Nova Scotia announced plans and timelines, Saskatchewan and New Brunswick considering similar);
  - U.S. (e.g., Colorado, Georgia, Kansas, Michigan, Nebraska, New Mexico, Oregon, Utah, Virginia, Washington, Wisconsin)
- An Ontario specific variant for Track 2, that is not yet common within other jurisdictions, is the focus on economic development, which could also include specific requirements for new electricity demand from Buyers (based on their new investments).

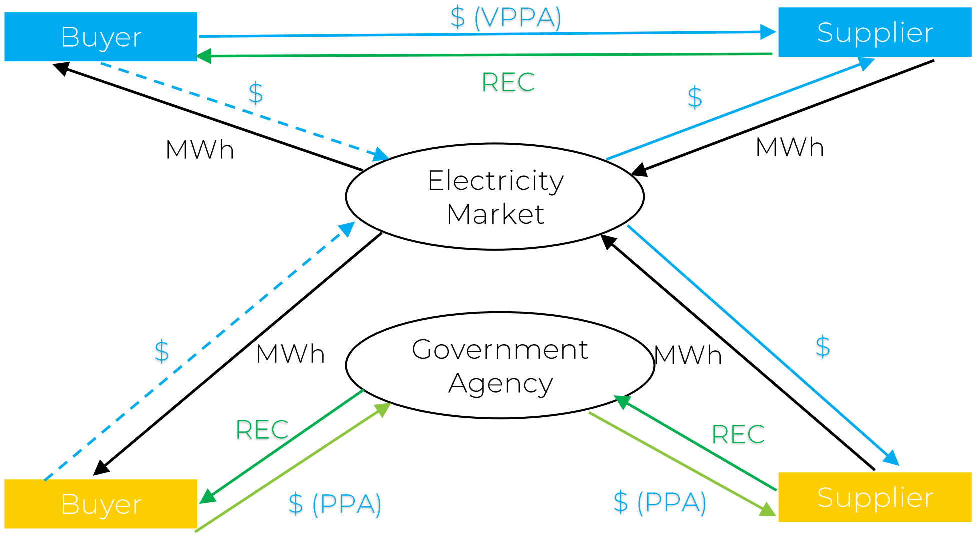
Framework for Buyer Investments in Ontario and Buyer/Seller Corporate PPA Transactions in Ontario

Track 1 – Direct VPPA

A) Partial GA costs, or
B) No GA costs

Track 2 – Economic Development & ESG Compliance

A) Partial GA costs, or
B) No GA costs



Main solution:
Amend regulation for GA costs and allocation

Track 2 – Government Agency, Economic Development and ESG
Compliance procurement options/steps

i. Government Agency Buyer Expression of Interest (EOI)/Request for Proposals (RFP) (Economic Development)
   - Investments - Jobs - Others
   - ESG objectives - New electricity demand

ii. Government Agency Supplier EOI/RFP (ESG Compliance)
   - Supply needs - Power system needs
   - ESG objectives - Others

Track 1 – Direct VPPA: Structure and Design

- Under VPPAs transacted directly between Buyers and Sellers a 'strike' price (i.e., VPPA price) is negotiated within VPPAs and used to settle the transaction for renewable energy and/or RECs. Essentially, VPPAs are contracts for differences (CfDs), where payments are determined by comparing that VPPA price against an electricity market reference price. For example, if VPPAs were transacted in Ontario today, the Hourly Ontario Energy Price (HOEP) would be used as the electricity market reference price.

- Because these VPPAs are essentially financial-only CfDs, they do not require Suppliers under these contracts to physically delivery electricity to Buyers. Therefore, Buyers will continue to consume and purchase electricity from the electricity market. However, VPPAs hedge electricity market price risks for both Buyers and Sellers. This contract hedge provides valuable price certainty that assists Buyers in managing their electricity costs and Suppliers to finance their generation projects.

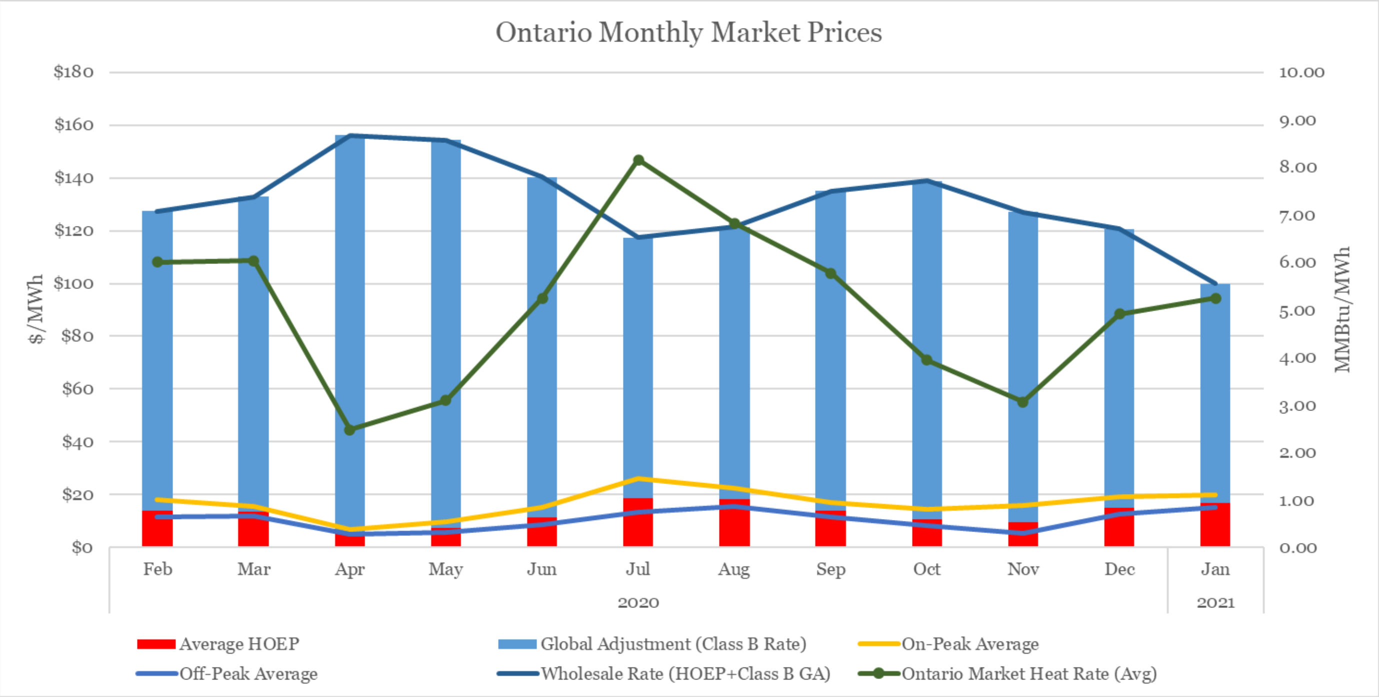
- Given the CfD structure within these VPPAs, settlement of these contracts may result in payments to Suppliers or Buyers. That is, when the electricity market reference price is higher than the VPPA price, the Supplier pays the difference to the Buyer. Conversely, when the electricity market reference price is lower than the VPPA price, the Buyer pays the difference to the Supplier. Settlement of VPPAs between Buyers and Suppliers occurs at time periods specified within VPPAs, typically either monthly or quarterly.

- Along with the electricity market price hedge described above, typically, Buyers within VPPAs claim the RECs (i.e., EAs)) associated with the Sellers' renewable energy. Therefore, VPPA price typically 'bundles' renewable energy with RECs.

Barrier to Address to Enable Track 1 – Direct VPPAs

- Technically, there's no statute or rule not permitting Buyers and Suppliers from entering into VPPAs. However, an economic barrier does exist – which renders VPPAs uneconomic within Ontario's electricity market today. GA is this barrier. That is, GA is essentially a sunk cost that accrues all payments to all Ontario-based generators made through their contracts or regulated rates, and charges these costs to all electricity customers (i.e., potential Buyers) in Ontario. Further, customers have no mechanism to financially hedge GA costs.
    - Because of the GA structure, customers can only lower GA costs through consuming less electricity. This is why programs, such as ICI, were created. The ICI program enables lowering GA costs for Class A customers when they consume less electricity during the five critical peak hours within a year.
    - Therefore, in a way, the ICI program has acted as a deterrent towards finding solutions to enable Corporate PPAs within Ontario; therefore, C&I customers (i.e., potential Buyers) should have optionality to transact VPPAs and/or use the ICI program. However, these options should be designed to not cannibalize one another.
- Because of the structure of GA, coupled with significant electricity oversupply within Ontario, wholesale electricity prices (e.g. HOEP) are very low, and inversely GA costs are very high.
    - In general, HOEP and GA have an inverse relationship – mainly driven by the CfD settlement structure within most generator contracts held with the IESO.
    - For 2020, average HOEP prices were approximately $14/MWh compared to average GA costs of approximately $118/MWh (see https://www.ieso.ca/en/Corporate-IESO/Media/Year-End-Data). The graph on the subsequent page shows how GA costs are multiple times greater than HOEP.
- Therefore, to enable Corporate PPAs within Ontario, solutions are needed to address GA costs for Buyers who would otherwise want to transact VPPAs with Suppliers.

GA Represents a Very Large Portion of Electricity Costs for Ontario Customers Without Ability to Financially Hedge GA Costs



Source: Power Advisory

Solutions to Address GA Barrier to Enable Track 1 – Direct VPPAs

- There are two solutions to address the GA barrier for Buyers to have economic incentives to transact Corporate PPAs with Suppliers – which also result in these Buyers meeting other corporate mandates and objectives (e.g., ESG related, etc.).
- For Buyers that wish to transact Corporate PPAs with Suppliers, they should either fall under:
  - i. Option 1 – not be charged any GA; or
  - ii. Option 2 – only partially be charged GA.
- The requirements and rationale for Buyers under Option 1 include:
  - Buyers could only qualify for not being charged any GA if they successfully demonstrate investments within Ontario resulting in new electricity demand;
  - Buyers with new electricity demand and a Corporate PPA should not pay for electricity supply 'twice', as renewable energy from the Supplier is new electricity supply; and
  - Buyers should be rewarded with no GA costs resulting from delivering on investments within Ontario (e.g., jobs, etc.).
- In order to provide optionality, the requirements and rationale for Buyers under Option 2 include:
  - New supply is forecast to be needed within Ontario starting in 2025 and lasting until the mid-2030s, so Buyers who enable new renewable supply through Corporate PPAs should only pay a portion of GA; and
  - This option does not require the Buyer to bring new electricity demand to Ontario.

Track 2 – Economic Development & ESG Compliance: Structure and Design

- As stated earlier in the report, Track 2 enables the Ontario government, through one of their government agencies (e.g., Infrastructure Ontario, Invest Ontario), to target economic development (e.g., investments, jobs, etc.) guarantees from Buyers, and then based on ESG corporate mandates and obligations separately procure renewable energy (including RECs) and/or other renewable energy enabling technologies (e.g., energy storage) from Suppliers. This Track helps address both economic and electricity needs within Ontario. Essentially, the government agency executes two sets of PPAs – with Buyers and separately with Suppliers through the following Steps,

- Step 1 – Government Agency defines economic development requirements (e.g., type of investment, job creation, etc.) along with exploring ESG compliance needs (e.g., renewable energy, etc.) from prospective Buyers through the following process:
  - Consult with Buyer and other stakeholders;
  - Issue EOI, to determine potential uptake of new investment and ESG compliance needs;
  - Review Buyer proposals responding to EOI;
  - If EOI results in tangible and attractive new investments within Ontario and ESG compliance needs, an RFP is issued; and
  - IF RFP results in in tangible and attractive new investments within Ontario and ESG compliance needs, including renewable energy prices prospective Buyers are willing to contractually pay, Government Agency proceeds to Step 2.

Track 2 – Economic Development & ESG Compliance: Structure and Design

- Step 2 – Based on results from EOI/RFP to determine Buyers, Government Agency defines electricity supply requirements (e.g., power system needs, location of projects, timing to develop projects, renewable energy and other energy enabling technologies, etc.) from prospective Suppliers through the following process:
  - Consult with Suppliers and other stakeholders;
  - Issue EOI, to determine potential uptake of renewable energy and other energy enabling technologies (e.g., energy storage, etc.);
  - Review Supplier proposals responding to EOI;
  - If EOI results in tangible and attractive projects for renewable energy and other energy enabling technologies, an RFP is issued in accordance with defined electricity supply requirements; and
  - IF RFP results in in tangible and attractive projects for renewable energy and other energy enabling technologies within Ontario, including cost effective renewable energy prices proposed to deliver new electricity supply, Government Agency proceeds to Step 3.
- Step 3 – Execution of PPAs with Buyers and Suppliers
  - Government Agency executes PPAs with Buyers, including terms for economic development deliverables (e.g., jobs, etc.) and price to be charged for 'bundled' renewable energy supply and RECs, with potential for negotiation of PPA terms; and
  - Government Agency executes PPAs with Suppliers, including terms for project development, operations and price for 'bundled' renewable energy and RECs, with potential for negotiation of PPA terms.

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Optionality in Track 2 and Solution to Address Barriers to Track 1 and Track 2

- As is the recommended case within Track 1, Option 1 (Buyer does not pay any GA costs) and Option 2 (Buyer pays a portion of GA costs) can be applied in the same manner within Track 2, regarding the PPA between the Buyer and the Government Agency.

- As stated previously in the report, GA is the economic barrier that presently does not enable Buyers and Sellers to transact Corporate PPAs in Ontario.

- Therefore, to enable Ontario to receive the economic development benefits of the Framework, and for Buyers to better manage their electricity needs and costs while meeting corporate ESG mandates and objectives, Regulations will need to be amended to enable Buyers under VPPAs (Track 1) or PPAs (Track 2) to either not be charged GA or be charged a portion of GA.
    - Changes to the same Regulations will also be needed to determine re-allocation of GA charges that will not be paid by Buyers within the Framework (as would be the case with Option 2, and maybe also for Option 1).

- Amendments to O. Reg. 429/04 will be required to facilitate Option 1 and Option 2, along with re-allocation of GA charges to other customers.
    - For O. Reg. 429/04, see https://www.ontario.ca/laws/regulation/040429

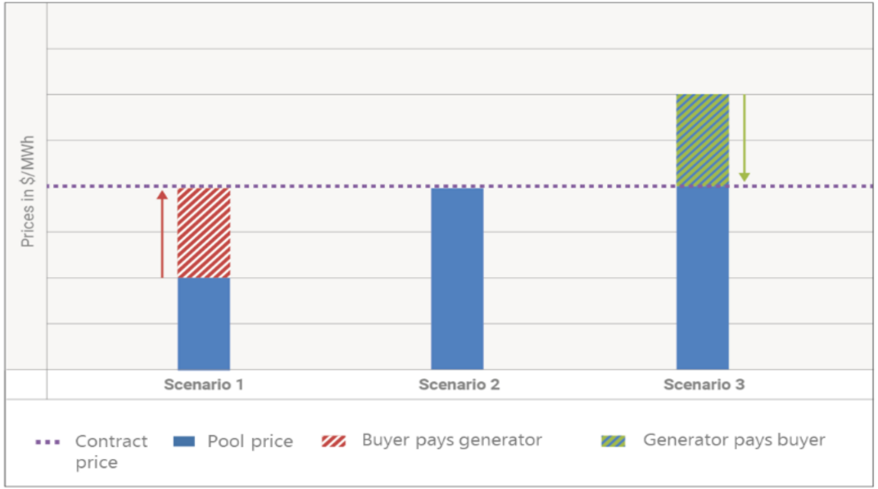
High-Level and Stylized Example of PPA Settlement for Suppliers Under Track 1 or Track 2

- Both VPPAs under Track 1 (i.e., between Buyer and Supplier) and PPAs under Track 2 (i.e., Government Agency and Supplier) are CfDs. Therefore, the contract prices under VPPAs and PPAs will be financially settled against the wholesale electricity price as set through Ontario's wholesale electricity market administered by the IESO.

- The graphic on the following page shows the settlement of CfDs based on an example from the Alberta wholesale electricity market and applicable contracts for renewable energy supply. The referred to "pool price" is Alberta's wholesale electricity price. Therefore, the example can be applied to the proposed Framework.

- Because of the CfD settlement framework, at times the Buyer/Government Agency will contractually pay the Supplier, and at other times the Supplier will pay the Buyer/Government Agency, depending on the contract prices and wholesale electricity prices.

High-Level Example of Settlement for Suppliers Under Track 1 or Track 2



Scenario 1	**Scenario 2**	**Scenario 3**
The pool price is low, so the buyer pays the generator to meet the contract price (shown in red)	The pool price is equivalent to the contract price, so there is no payment to the generator for these periods	The pool price is higher than the contract price, so the generator would pay that amount (shown in green) back to the buyer

5. Potential for Commercial & Industrial Buyer Investing and Transacting Corporate PPAs

Five Sectors Represent Immediate Potential for Buyers Transacting Corporate PPAs in Ontario

- As stated in the previous section of this report, GA is the barrier preventing the transaction of Corporate PPAs in Ontario. Therefore, amendments to O. Reg. 429/04 will be required to address this barrier.

- With changes to O. Reg. 429/04, the following sectors present immediate potential for Buyers to explore transacting Corporate PPAs in Ontario towards meeting their corporate ESG mandates and objectives:
  - Technology;
  - Automotive;
  - Agriculture and Food Processing;
  - Financial Services; and
  - Commercial Retail.

- Rationale is provided in the following pages as to why these five sectors present immediate potential for Buyers to explore transacting Corporate PPAs in Ontario.

Technology Sector – Rationale for Immediate Potential for Buyers Transacting Corporate PPAs in Ontario

- As stated in previous sections and within the Appendix of this report, the technology sector has globally led the way in transacting Corporate PPAs for renewable energy supply. This is mostly driven by relatively very aggressive corporate ESG mandates and objectives.

- Ontario houses the most 'technology hubs' across Canada (i.e., Greater Toronto Area (GTA), Ottawa Valley, Kitchener-Waterloo-Cambridge-Guelph), largest urban centers (e.g., GTA), and Canada's financial capital (i.e., Toronto), therefore global technology firms have been choosing Ontario as the main location for investments in Canada.

- Therefore, considering the above points, the technology sector presents high potential for Buyers to explore transacting Corporate PPAs.

- For example, investments in datacenters are being made in Ontario, resulting in increased electricity demand (i.e., approximately few hundred megawatts (MW)), with potential for more datacenter and other investments (e.g., research and development, etc.).

- In addition to one of the listed technology companies (see section 3 of this report) presently administering a procurement process for on-site solar energy (with potential for energy storage) in Toronto, another technology company is exploring potential for transacting Corporate PPAs or 24/7 carbon-free energy in Ontario if exposure to GA costs can be mitigated.

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Automotive Sector – Rationale for Immediate Potential for Buyers Transacting Corporate PPAs in Ontario

- As stated in previous sections and within the Appendix of this report, many companies in the automotive sector have recently announced corporate ESG mandates and objectives, in part driven by manufacturing of electric vehicles (EVs) and EV components (e.g., batteries, etc.).
- Through multiple automotive companies, Ontario has a long history supporting its automotive manufacturing sector. Ontario's automotive sector continues to be an important sector, as evident with its evolution and growth (e.g., multiple and recent announcements relating to manufacturing EVs).
- The fact that the automotive sector in the U.S. is leading the way in transacting Corporate PPAs within the broader manufacturing sector, coupled with companies within Ontario's automotive sector not being eligible for the ICI program, the Ontario automotive companies have lots of incentives to explore transacting Corporate PPAs if the GA barrier were sufficiently addressed.
- For example, at least one of the listed automotive companies in section 3 of this report is in active discussions with the Ontario government regarding potential new EV component manufacturing investment and has raised their desire to enable renewable energy supply coupled with this investment potential.

Agriculture and Food Processing Sector – Rationale for Immediate Potential for Buyers Transacting Corporate PPAs in Ontario

- The IESO has recently reported projected increases in electricity demand in western Ontario, mainly due to increase agriculture economic activity and investments.
    - For IESO projections of increasing electricity demand, see IESO latest *Reliability Outlook* (Spring 2021: April 2021 to September 2022), located at https://www.ieso.ca/en/Sector-Participants/Planning-and-Forecasting/Reliability-Outlook

- Some electric loads are partially being met by development of on-site gas-fired generation. However, considering corporate ESG mandates and objectives of some agricultural and food processing companies, there is an increasing desire to explore on-site renewable energy supply and/or on-site energy storage, and/or Corporate PPAs if the GA barrier can be sufficiently addressed.

- For example, within the past few years, an Ontario based food processing company explored transacting a Corporate PPA in Ontario, including multiple meetings with a preferred renewable energy generator. Further, this food processing company held multiple meetings with the Ontario government with the ultimate goal of addressing barriers to transacting a Corporate PPA.

Financial Services Sector – Rationale for Immediate Potential for Buyers Transacting Corporate PPAs in Ontario

- As shown in section 2 of this report, financial services companies have been transacting Corporate PPAs in the U.S. and in Canada. For example, RBC has transacted a Corporate PPA within Alberta.

- In addition to all of Canada's major financial services companies' (e.g., banks, insurance, etc.) head offices located in Toronto, all of the major banks have adopted strong corporate ESG mandates and objectives.

- Therefore, considering the above points, the financial services sector presents good potential for Buyers to explore transacting Corporate PPAs.

- At least one of Canada's largest banks is presently in a process working towards transacting a Corporate PPA within Alberta. And considering that some of Canada's largest banks are registered participants within Ontario's wholesale electricity market (mainly as trading entities), and have financed a significant amount of renewable energy supply projects within Ontario, these banks are very familiar with Ontario's electricity market. Therefore, these points suggest if GA can be sufficiently addressed, some of Canada's largest banks could be quick to explore transacting Corporate PPAs within Ontario.

Commercial Retail Sector – Rationale for Immediate Potential for Buyers Transacting Corporate PPAs in Ontario

- As listed within the Appendix of this report, Ontario based commercial retail companies (e.g., Canadian Tire, Loblaws, IKEA) have on-site solar energy. Further, in 2013 and 2017, IKEA transacted Corporate PPAs within Alberta.

- Many of the large commercial retail companies have Canadian head offices in Ontario, and all of these companies have adopted strong corporate ESG mandates and objectives. And due to Ontario's population and economy, the majority of revenues for these large retail companies result from Ontario sales.

- Therefore, considering the above points, the commercial retail sector presents good potential for Buyers to explore transacting Corporate PPAs if the GA barrier can be sufficiently addressed.

- At least one large U.S. based commercial retail company is in the process of potentially transacting multiple Corporate PPAs in Alberta. Therefore, in addition to Ontario based commercial retail companies, U.S. based companies with high volumes of sales within Ontario could pursue transacting Corporate PPAs in Ontario if the GA barrier can be sufficiently addressed.

6. Summary, Recommendations, Next Steps

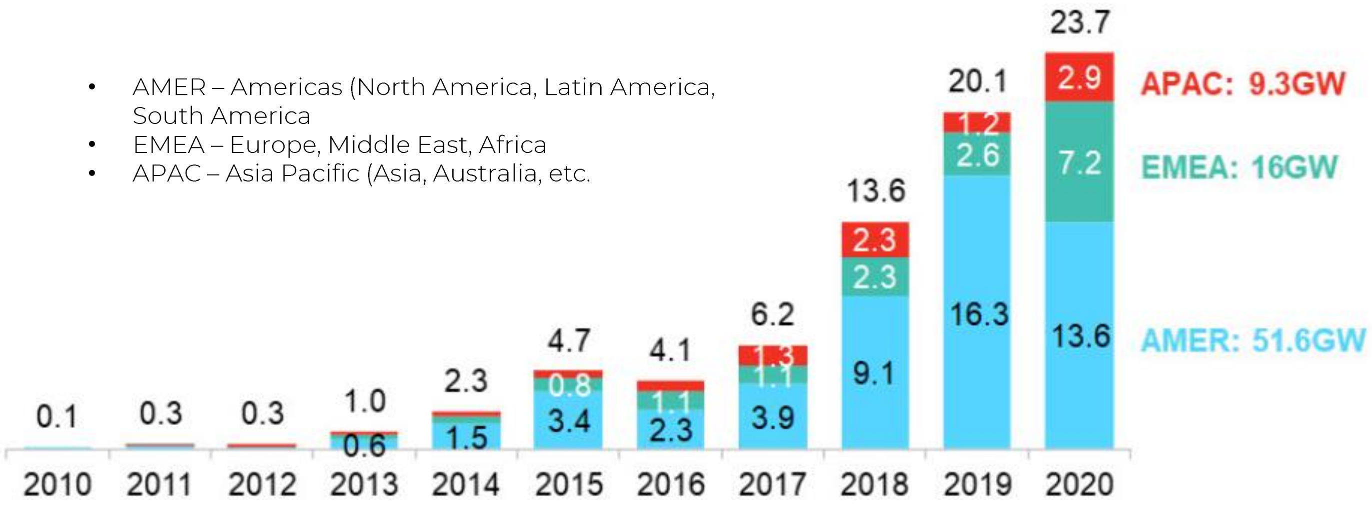
Proposed Framework for Facilitating Commercial & Industrial Buyer Investing and Transacting Corporate PPAs

- Drivers within competitive markets (i.e., capital markets, multiple sectors within economies, electricity markets, renewable energy supply, etc.) are resulting in the following key activities towards enabling a Framework for facilitating C&I Buyers making investments within Ontario and transacting Corporate PPAs within Ontario:
    - Corporate ESG mandates and objectives;
    - Customer preferences and associated ESG investing and corporation strategies and investments; and
    - Declining renewable energy costs, and accessible renewable energy supply.
- The above drivers are fueling exponential growth in Corporate PPA transactions globally.
- Ontario should address barriers to transacting Corporate PPAs by amending O. Reg. 429/04 to lower or eliminate GA costs for Buyers (i.e., C&I customers) that transact Corporate PPAs. Most importantly, Ontario should use the desire of Buyers to transact Corporate PPAs to secure new investments from these Buyers that will result in economic development and job creation. This is especially important considering the COVID-19 related impacts to Ontario's economy.
- Building on the recommended Framework within this report, Buyers with high potential to making investments in Ontario, combined with transacting Corporate PPAs, should be organized towards championing the Framework to the Ontario government.

II. Appendix

Reported Corporate PPAs for Renewable Energy Supply – Global Markets and Growth (2010-2020)

- AMER – Americas (North America, Latin America, South America
- EMEA – Europe, Middle East, Africa
- APAC – Asia Pacific (Asia, Australia, etc.



- Exponential corporate PPA growth has occurred since 2010 and led by the U.S.
- 'Financial' Corporate PPAs (i.e., VPPAs) only shown and reported.
    - 'Physical' (i.e., on-site) PPAs providing electricity to Buyers not included, Australia 'sleeved' PPAs not included, pre-market reform Mexico PPAs not included, and APAC 9.3 GW is an estimate.

Select Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Within the following pages, select Buyers have been organized into the following categories:
  - Technology;
  - Automotive;
  - Commercial Retail;
  - Telecommunications;
  - Financial Services;
  - Agriculture and Food Processing;
  - Oil and Gas; and
  - Mining.
- All of the Buyers listed have corporate ESG mandate and objectives (as can be found via associated weblinks within the following pages), vast majority have transacted Corporate PPAs, and some have developed renewable energy projects on site of their businesses (including within Ontario).

Technology Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Microsoft
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – active in over 50 countries, U.S. Corporate PPAS in North Carolina, Texas, Virginia, etc.
  - ESG mandate and objectives – see https://www.microsoft.com/en-us/corporate-responsibility/sustainability?activetab=pivot_1%3aprimaryr3
- Amazon
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – California, Delaware, Illinois, Indiana, Kansas, Kentucky, Nebraska, North Carolina, Ohio, Texas, Virginia
  - Largest U.S. Buyer (6.5 GW) across all sectors
  - ESG mandate and objectives – see https://www.aboutamazon.com/planet
- Google
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – U.S. (multiple states, e.g., Texas, etc.), Europe (multiple countries), Chile
  - Second largest U.S. Buyer (5.5 GW) across all sectors
  - ESG mandate and objectives – see https://sustainability.google/

Technology Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Facebook
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Illinois, Texas, Virginia
  - ESG mandate and objectives – see https://sustainability.fb.com/
- Shopify
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – U.S. (multiple states)
  - ESG mandate and objectives – see https://www.shopify.ca/about/environment
- Apple
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – U.S. (multiple states, e.g., Nevada, North Carolina, Oregon, etc.), Asia (multiple countries, e.g., China, Singapore, etc.)
  - ESG mandate and objectives – see https://investor.apple.com/esg/default.aspx
  - Apple currently has 25 operational renewable energy projects around the world, totalling 626 MW, once all renewable energy projects are built, over 1.4 GW of renewable energy will be spread across 11 countries

Automotive Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- GM
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Arkansas, Mississippi, Ohio, Tennessee,
  - ESG mandate and objectives – see https://www.gmsustainability.com/
- Ford
  - Multiple Corporate PPAs for solar, wind, and bio energy
  - Locations – U.S. (multiple states, e.g., Michigan, etc.), U.K., South Africa
  - ESG mandate and objectives – see https://corporate.ford.com/microsites/sustainability-report-2020/index.html
- Honda
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Oklahoma, Texas
  - ESG mandate and objectives – see https://global.honda/about/sustainability/report.html

Automotive Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Toyota
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – U.S. (multiple states, e.g., Kentucky, West Virginia), Denmark
  - ESG mandate and objectives – see https://global.toyota/en/sustainability/

Commercial Retail Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Walmart
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Illinois, Indiana, Oklahoma, South Dakota, Texas
  - ESG mandate and objectives – see https://corporate.walmart.com/esgreport/

- IKEA
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Canada (e.g., Alberta), U.S. (multiple states, e.g.,), multiple countries outside North America
  - Since 2009, invested close to $2.5 billion (EUR) in renewable energy, enabling self-supply of more renewable energy than consumes across operations in 2020 – total ownership and commitments include 920,000 solar modules on its sites and 534 wind turbines in 14 countries, with renewable energy now more than 1.7 GW
  - ESG mandate and objectives – see https://about.ikea.com/en/sustainability/sustainability-report-fy20

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Commercial Retail Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Starbucks
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Illinois, Texas, etc.
  - ESG mandate and objectives – see https://www.starbucks.ca/responsibility
- Best Buy
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – California, South Carolina, etc.
  - ESG mandate and objectives – see https://corporate.bestbuy.com/sustainability/
- Home Depot
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Kansas, Texas
  - ESG mandate and objectives – see https://ir.homedepot.com/esg-investors

Commercial Retail Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- McDonald's
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Illinois, Ohio, Oklahoma, North Carolina, Texas
  - ESG mandate and objectives – see https://corporate.mcdonalds.com/corpmcd/our-purpose-and-impact/impact-strategy-and-reporting.html
- Canadian Tire
  - Multiple locations self-supplying solar energy across Ontario
  - ESG mandate and objectives – see https://corp.canadiantire.ca/English/sustainability/default.aspx
- Loblaws
  - Multiple locations self-supplying solar energy across Ontario
  - ESG mandate and objectives – see https://www.loblaw.ca/en/responsibility/

Telecommunication Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- AT&T
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Oklahoma, Texas
  - ESG mandate and objectives – see https://about.att.com/csr/reporting
- Verizon
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – U.S. (multiple states, e.g., Indiana, New York, etc.)
  - Executed 13 Corporate PPAs to date, all funded by two $1 billion (USD) green bonds
  - ESG mandate and objectives – see https://www.verizon.com/about/sites/default/files/esg-report/2019/index.html
- T-Mobile
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Illinois, Kansas, Oklahoma, Texas, Virginia
  - ESG mandate and objectives – see https://www.t-mobile.com/responsibility/sustainability

Telecommunication Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Telus
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Canada (e.g., Alberta)
  - ESG mandate and objectives – see https://www.telus.com/en/social-impact/caring-for-the-environment

- Rogers
  - ESG mandate and objectives – see https://about.rogers.com/our-impact/

- Bell
  - ESG mandate and objectives – see https://www.bce.ca/responsibility/overview

Financial Services Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Wells Fargo
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Arizona, California, Texas, Virginia
  - ESG mandate and objectives – see https://www.wellsfargo.com/about/corporate-responsibility/goals-and-reporting/
- Citibank
  - Multiple Corporate PPAs for solar and wind energy
  - Locations – Texas
  - ESG mandate and objectives – see https://www.citigroup.com/citi/about/esg/
- RBC
  - Corporate PPA for solar energy
  - Locations – Canada (e.g., Alberta)
  - ESG mandate and objectives – see https://www.rbcgam.com/en/ca/about-us/responsible-investment/index and : http://www.rbc.com/community-sustainability/_assets-custom/pdf/RBC-Climate-Blueprint.pdf

Agriculture and Food Processing Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Maple Leaf Foods
  - Stated "support" for solar and wind energy:
    - Supports 99 MW St. Leon wind energy project in Manitoba
    - Supports 150 MW Brady Wind I project in North Dakota
  - ESG mandate and objectives – see https://www.mapleleaffoods.com/sustainability/

Oil and Gas Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- ExxonMobil
  - Multiple Corporate PPA for solar energy
  - Locations – Texas
  - ESG mandate and objectives – see https://corporate.exxonmobil.com/Sustainability/Sustainability-Report/ExxonMobil-and-sustainability
- Occidental
  - Multiple Corporate PPA for solar energy
  - Locations – Texas
  - ESG mandate and objectives – see https://www.oxy.com/Sustainability/overview/Pages/default.aspx
- Suncor
  - Owns wind energy projects in Ontario, Alberta, Saskatchewan
  - ESG mandate and objectives – see https://sustainability.suncor.com/en

Oil and Gas Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Enbridge
  - Owns wind energy projects in Ontario, Alberta, Saskatchewan, Quebec, West Virginia
  - Owns solar energy projects in Ontario, New Jersey
  - ESG mandate and objectives – see https://www.enbridge.com/about-us/our-values/sustainability

Mining Buyers – Corporate PPAs, Investments, ESG Mandates and Objectives

- Glencore
  - ESG mandate and objectives – see https://www.glencore.com/sustainability
  - Plans to deliver net zero total emissions by 2050 through seven core actions:
    - Managing our operational footprint: Reducing our Scope 1 and 2 emissions
    - Reducing Scope 3 emissions (i.e., address by investing in metals portfolio, reducing coal production and supporting deployment of low emission technologies)
    - Allocating capital to prioritising transition metals: investing in commodities the world needs
    - Collaborating with value chains: working in partnership with customers and supply chain to enable greater use of low-carbon metals and support progress towards technological solutions
    - Supporting uptake and integration of abatement: an essential contributor to achieving low or net zero carbon objectives
    - Utilising technology to improve resource use efficiency: contributing to circular economy
    - Transparent approach: reporting on progress and performance
- Vale
  - ESG mandate and objectives – see http://www.vale.com/esg/en/Pages/Home.aspx
  - Adopted an ESG Action Plan

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