

A journey, toward  
environmental sustainability





# We are RecyclaData

- ▶ Our mission is to implement patented, pioneering, **Gasification Powered, Carbon Capturing Power Plant/Data Center Installations** in a concerted effort to *permanently* alter the trajectory of our modern world towards a cleaner, environmentally sustainable future!



# Who are we?

- ▶ **RecyclaData** formed as a partnership directly resultant of a successful collaboration project between a tech/engineering team and a green energy partner. Our vision was, and has been, to utilize a patented municipal waste gasification process in building microgrid Data Centers directly powered by 100% **Green Energy**.
- ▶ **RecyclaData** is primarily comprised of Natives of Appalachian Kentucky. Our backgrounds of expertise range from former School Teacher to Chemist/Biologist, with a fair number of former Coal Miners in the mix as well.
- ▶ **The defining factors of our team at Recycladata are simply the attributes we've found in common, including:**
  - ▶ **Drive for innovation**
  - ▶ **Sheer defiance of convention**
  - ▶ **Powerful and intrinsic desire to reshape the world**



# What we do:

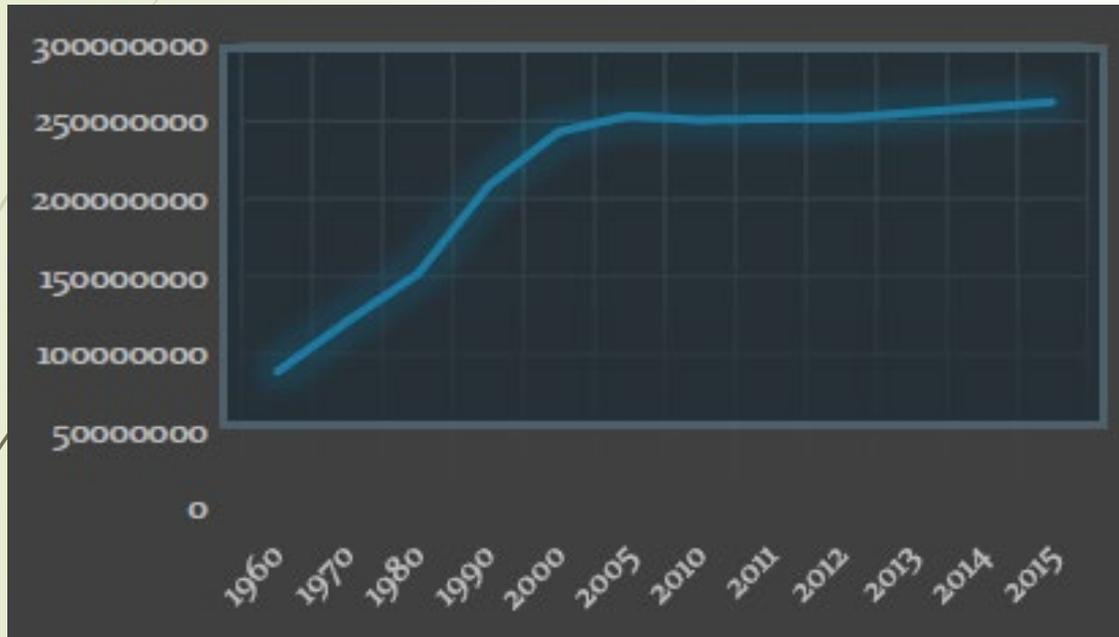
- **RecyclaData's** primary focus is on building Colocation Data Centers utilizing a patented municipal waste gasification process which produces 100% **Green Energy**.
- We maintain best in class (low) carbon emissions through **Carbon Capture Technology**
- **We offer a resilient source of power that is on the same property as the data center.**
- **We provide a small and more nimble approach that can be deployed in high speed and near the edges of the network where the data is being created.**



# Why was RecyclaData created?

- ▶ Global energy demands are ever increasing and carbon output is growing as well. The Data Center Industry just so happens to be one of the most power hungry in existence and seemed a perfect fit for our **Green Energy** concept.
- ▶ Through the use of our gasification process, of municipal waste, we've positioned ourselves to be the answer to one of modern society's most asked questions:
- ▶ The new edge computing technology will be as large as the cellular industry. Our system is a perfect approach to deploy small data centers on the edge technology philosophy.
  - ▶ **What can we do with all this trash?**

# A Perplexing Problem



Tons of Municipal Waste created in the US  
2015 - Approx. 262 million tons

In 2018, the average person generates 4.4lbs of waste per day



# A Perplexing Problem

- ▶ In 2015 the United States generated approximately **262 million tons** of MSW were generated.
- ▶ Of the MSW generated, approximately **68 million** tons of MSW were recycled and **23 million tons** of MSW were composted.
- ▶ Together, more than **91 million tons** of MSW were recycled and composted, equivalent to a 34.7 percent recycling and composting rate In addition, more than **33 million tons** of MSW (12.8 percent) were combusted with energy recovery
- ▶ Networking has changed in the face of the Covid Pandemic. Data creation has migrated away from the huge downtown processing to remote creation of data further away from the core of a large city.
- ▶ Finally, more than **137 million tons** of MSW (52.5 percent) were landfilled.



# A Perplexing Problem

- ▶ In 1990 there were **6,326 landfills** in the USA and **144 waste to energy incinerators**. In 2015, the number of **landfills** had fallen to **1,738** and the number of **waste to energy incinerators** had fallen to **75**.
- ▶ During this period (1990 – 2015), landfills have become larger in size and more regional in nature, this statistic is alarming.
- ▶ **Waste recycling** has bridged the gap related to disposal options, with a large percentage of the recycled products being exported to China.
- ▶ In early 2018, China imposed strict recycling import guidelines, and US recycled exports have plummeted as a result. Many communities have halted recycling programs as the recycling market adjusts to a new normal and other outlets are identified.
- ▶ States such as Virginia have passed legislation to prevent data centers from creating such an enormous carbon footprint.

# The Green Answer





# Our Gasification Process

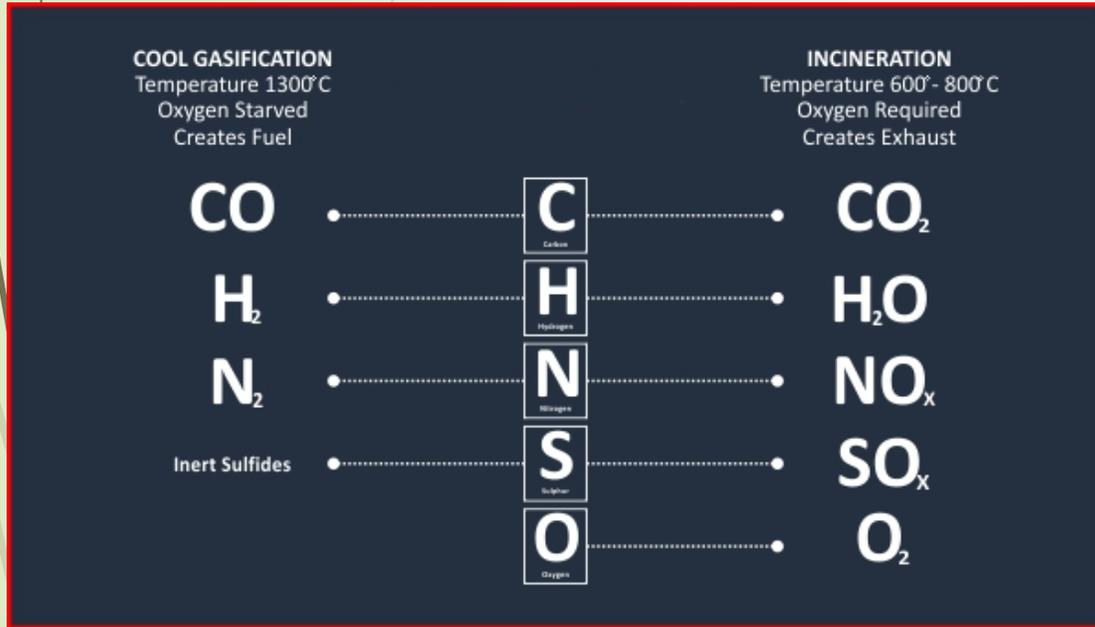
- ▶ RecyclaData's advanced gasification technology presents significant benefits over the diminishing returns of traditional waste-to-energy approaches
  - ▶ **Typical incineration plants** have an energy ratio of **500kwh/ton** of MSW
  - ▶ **RecyclaData Patented Process** has an energy ratio with a greater than **45% improvement** over standard incineration
- 



# Incineration vs Gasification

- Incineration literally means to render to ash.
- **Gasification**, instead, converts MSW to a usable synthesis gas, or syngas. Instead of making just heat and electricity, as is done in a waste-to-energy plant using incineration, the syngas produced by gasification can be turned into higher valuable commercial products, or energy in a more efficient manner than incineration.
- The process **extracts 100% of the heating value** out of the feedstock
- The syngas requires a lesser amount of air for oxidation, improving the overall thermal system efficiency
- ***RecyclaData employs an RST patented technology to produce an integrated energy solution***

# Incineration vs Gasification



- Incineration is an inherently 'Dirty' process as it releases several pollutants into the atmosphere.
- As illustrated on the left, the process of gasification transforms the same constituent elements into Carbon Monoxide (Converted to CO<sub>2</sub> upon Rx with water), Hydrogen and Nitrogen, Each of these gasification products can be utilized for energy production, creation of products or industrial processes

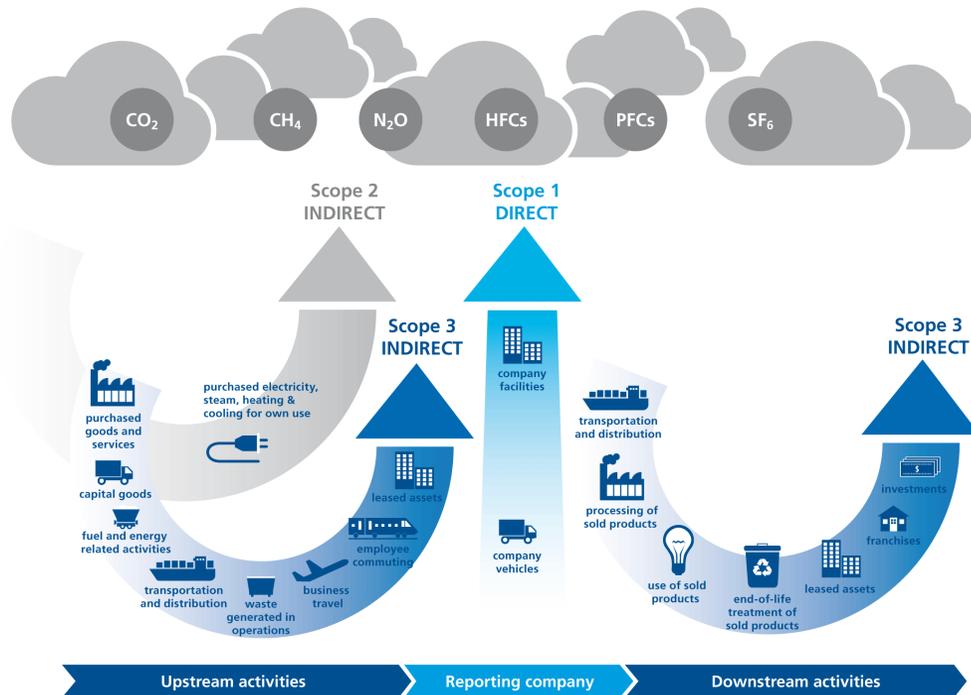


# The Environmental Benefit

- ▶ In terms of carbon released into the atmosphere, methane (CH<sub>4</sub>) is estimated to be 30x more potent GHG (Green House Gas) in trapping heat than a comparable amount of CO<sub>2</sub> (Carbon Dioxide).
- ▶ Landfills, because of their decaying biomass, give off a large amount of methane. Over a 5 year period, methane traps approximately 100x more heat in our atmosphere than a comparable amount of CO<sub>2</sub>. Through our gasification process, the majority of this methane is converted to CO<sub>2</sub> + H<sub>2</sub>O and is then carbon captured, thus substantially reducing the concentration of potent greenhouse gas and reducing the overall environmental impact.
- ▶ **We are the only Data Center Colocation solution with net Carbon Neutral – Low Carbon outcomed in GHG Scopes 1-3**

# GHG Scope 1,2, and 3

Overview of GHG Protocol scopes and emissions across the value chain



Source: myclimate.org - World Resources Institute & World Business Council for Sustainable Development, 2011.

- **Scope 1 emissions:** Direct from facilities – Includes fossil fuel combustion
- **Scope 2 emissions:** From purchased electricity which generally comes from several different fossil fuel sources
- **Scope 3 emissions:** All remaining greenhouse gas emissions upstream and downstream in the supply chain including employee commuting and 14 other categories



# Scope 1,2, and 3 Benefits with RecyclaData

- ▶ **Scope 1:** RecyclaData's scope one emissions range from **low to virtually non-existent** thanks to our gasification/carbon capture process
- ▶ **Scope 2:** Our Data Centers which use power from the gasification plant also fall in the **low-very low** range on scope 2 emissions, as our scope 2 emissions are a direct reflection of scope 1 emissions. This is thanks to our integrated 'All-In-One' design.
- ▶ **Scope 3:** Since 'Waste generated in operations' is a category under scope 3, any scope 3 emissions up or down the supply chain, that are produced, can be **totally offset** by the removal of methane gas municipal waste gasification process.



# The **RecyclaData** Advantage: Green Power Pass

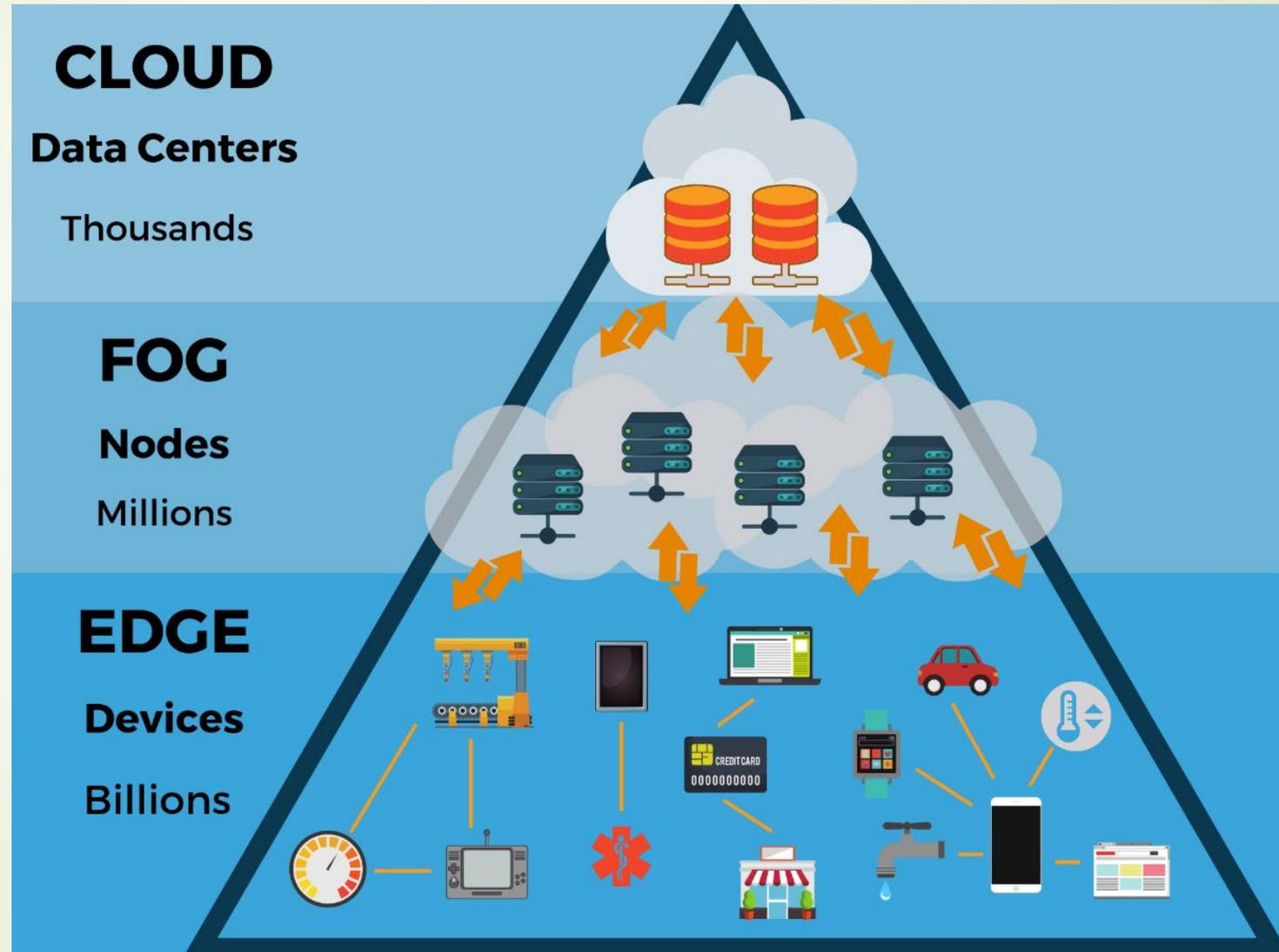
- ▶ Thanks to the **Green Power Pass** program we can enable companies to reach their sustainable energy goals, while also passing along RECs (Renewable Energy Credits) to clients who choose to colocate with us! We can also monetize the credits they receive from our program.
- ▶ It's a win-win



# Get Closer To The Edge Of The Network

- ▶ Networks are changing in the way data is being transmitted. Devices are becoming data demanding in all applications.
- ▶ Distance to the where the data of devices is created has never been more needed.
- ▶ Recycladata can provide the solution for this issue by locating near these areas that are popping up daily.
- ▶ The need to go to the large city to have access to safe and high speed internet is no longer the way of doing business.
- ▶ Edge computing is a growing necessity that is just gaining momentum. Recycladata will be able to accomplish the issues that would hinder Edge computing growth.

# Where Is The Edge?





# The RecyclaData Advantage: A Holistic Solution

- ▶ With our patented Waste 'Gasification – Energy – Data Center Power' process, you can feel at ease knowing with each Database query, with each spun up Virtual Machine, with each Backup, we are reducing the overall amount of municipal waste on this planet.
- ▶ Essentially: **Increasing Demand = Increasing Environmental Benefit**
- ▶ We are a pure example of how renewable energy can be substantially cleaner and less expensive than traditional fossil fuels.
- ▶ We offer a more resilient more dynamic solution for the Edge of network data creation model.



# The **RecyclaData** Advantage: Recycling Materials

- ▶ In typical incineration facilities, an average of 25% of the incoming waste stream is sent back to a landfill for disposal.
- ▶ **RecyclaData's** eco-engineered gasification technology addresses this problem in an unprecedented fashion, wherein **100% of the by-products have a beneficial reuse.**
- ▶ Only **RecyclaData** provides a 100% recycling advantage.
- ▶ Significant clean energy production from the gasified feedstock.
- ▶ **All ferrous and non-ferrous metals are recovered**, down to the individual paperclips and staples.
- ▶ All ash frit has passed extensive TLCP testing for beneficial reuse as aggregate.
- ▶ All glass is crushed as reuse in glass-fault facilities.

# The RecyclaData Advantage: Recycling Materials





# RecyclaData Data Centers

- ▶ **RecyclaData's** Data Center's provide a one of a kind opportunity
- ▶ We are the only Data Center Colocation company who generates power onsite, using green energy (Directly providing RECs to customers) and **our power cost is nearly non-existent** in comparison to competing Data or Power solutions
- ▶ How?
  - ▶ Our municipal waste gasification facility does not pay for MSW, **we are paid to receive MSW.**

# RecyclaData Data Centers

## ENERGY SCALE

Global electricity demand

**20,000** TWh

Data-centre electricity demand

**200** TWh

©nature

Sources: IEA/A. Andrae/Ref. 6

- ▶ In 2015 there were an estimated 5,000,000,000 (five billion) total internet connected devices
  - ▶ In 2020, it is estimated that over 50 billion machines will be online
- ▶ With an increasing data demand, it is estimated that Data Centers are consuming over 1% of all electricity across the globe
- ▶ Our role in reducing Data Center related carbon emissions cannot be understated



# Let us show you what renewable power can and will be!

- ▶ Our technology is advanced but the solutions we provide are simple!
- ▶ Lower cost for FOIP (Future Of Internet Power)!
- ▶ Green Renewable Credits passed on to the customer that can be monetized!
- ▶ Full control of the primary source of power for dependability!
- ▶ Unlimited Power!
- ▶ Smaller and more deployable!