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TRUE ENERGY TECHNOLOGY: WASTE DESTRUCTION DELIVERING CLEAN ENERGY

HYROGEN REDUCTION

with

ZERO ATMOSPHERIC EMISSIONS

February 2023

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Agenda

True Energy Inc.

- History and Approach
- Distinct Technology- the “Exclusive Skill”
- Inputs vs Outputs
- Projects/Examples:
- Environment Bona Fides: ISO 14064/Article 6 Paris Accord/CDM

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History

True Energy Inc.

- Company established in 2015 after 30 years in business of destruction of hazardous wastes for:
  - General Motors Canada
  - Government of Australia
  - US Army – Assembled Chemical Weapons Assessment: Chemical Warfare Agent Weapons Destruction
  - Destruction of *HMX, TNT, RDX*, for US Army completed early 2000s
- Cleaned Hamilton Harbour seabed for Canadian Military
- US EPA Superfund, Innovative Technology Evaluation- Bay City Michigan landfill
- New patents developed and published in 2020

Technical

True Energy Inc.

- Technical Competence
  - Dr. D Hallett: CEO, Former Chief Scientist, Environment Canada; world-recognized expert by Lloyds of London for contamination and clean-up activities
  - Ian P. MacKinnon: President, Participated in generating ISO14064; CSA CleanProjects™ Carbon Registry; NRC, DRDC, US DoE Technology commercialisation
  - Dr. T. Prociv: Advisor: Former Deputy Undersecretary of Defense, US Military Chemical Specialist
  - Dave Willis: Engineering Partner
  - David Teichroeb: Former Senior Engineer-Enbridge Inc. (North America's largest pipeline company), responsible for new technologies
  - Mike Griffiths: Marine Project Leader
  - Contractual Partners: for engineering services and manufacturing

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Exclusive Skill

True Energy Inc.- Patented Clean Energy Production

- Proven solution- PCBs, HCH and Chemical destruction
- Cheaper and safer solution vs current market solutions
- Deployed locally- no pipelines; at source of the waste or community
- Conversion of waste into either Renewable Natural Gas (“RNG”) or Hydrogen (“H_2”)
- Process allows for a change in output as required
- Input: MSW, 100 tonnes/day (50 bone-dry) as measured by “Energy Content”; Energy content of the input determines the volume
- Annual Output: RNG- NET 260K+ GJ; H_2: 4+ million kg of Hydrogen

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Approach

Complete Waste Management

- A chemical process – organic molecules react with a “reducing agent”
- Hydrogen vaporizes or “reduces” all waste into elemental compounds, primarily methane gas; limited carbon and/or silica available for aggregate use/sale as are any recyclables
- Converts any organic waste material, including Municipal Solid Waste (MSW), Auto Shredder Residue (ASR), Sewage Waste (SW) and hazardous wastes into RNG/H_2
- Local generation of Clean Energy
- 100 tonnes/day processed/module
- No negative emissions or hazards
- Global Patents Published 2020
- Environmental Value Proposition

No Atmospheric Emissions

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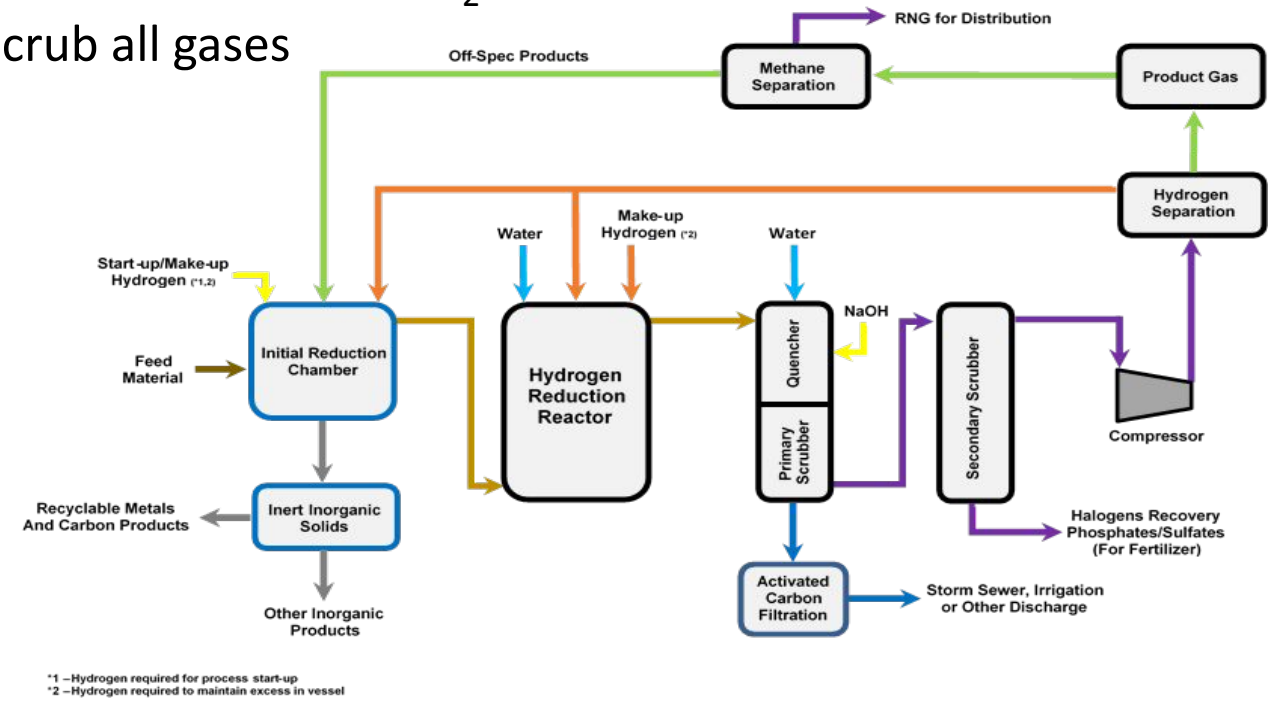
Distinct Process

Three Phase Process

- Initial Reduction: Soil loaded by batch into chamber- hydrogen introduced leading to vapourization of all wastes
- HR Chamber: Production of CH4/ H_2
- Quench and Scrub all gases



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Operation

Initial Reduction Chamber

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Operation

System Scrubber: No Atmospheric Emissions

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System Input

(example)

Pre Treatment

Contaminated Drums:
Dioxin containing
still bottoms

Post Treatment

Drums were empty
and clean

Inputs & Outputs

Flexibility via Hydrogen Reduction

Input Silos:

- Used POLs, Coal, Bitumen
- Hazardous Materials: PCBs, Explosives, Chemicals etc.
- Contaminated Soil
- Municipal Solid Waste: No Blue/Green/Grey bins- just bags
    - Total diversion possible
    - No sorting/drying required
- Plastics, Sewage Sludge
- Any metals fall-out and can be recycled

Outputs- Energy

- Renewable Natural Gas- pipeline quality/grade
- Hydrogen- Blue to Green
- Deployed locally-at the point of the input or output need

RNG Output

Renewable Natural Gas Output

- Natural Gas Industry commitments for RNG
- Make use of minimal market rate NG and sell at RNG rate
- Industry contracts for $ 30.00+/GJ average (USD) in Europe
- Carbon Offset benefits depend on input material
- Local delivery of RNG for new markets, underserved areas, internal operations (trucking/infrastructure), point to point industrial uses to save offer savings on electricity, sales to other CNG users

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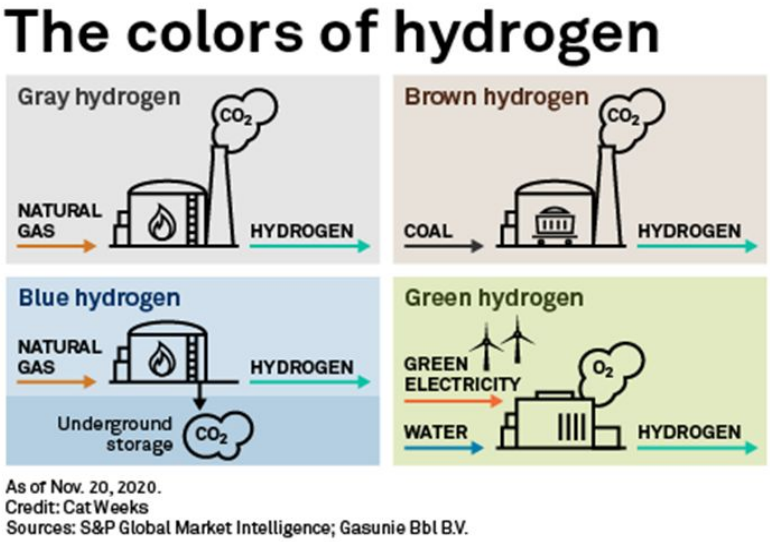
H_2 Output

Hydrogen Output



Current price for H_2 for transportation:

California: $ 13-16.51/kg (USD)
United Kingdom £ 10-15.00 /kg

HR: For industry-priced as turquoise or Blue depending inputs: > $ 12.00/kg (USD)

- Motor Trend magazine: vehicle Refuelling- expected to be $ 6.00-7.00 (USD) per kg-2024

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Projects

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History-Reputation

- For Lloyds of London: TransNorthern Pipelines- explosive levels of gasoline leaked over agricultural lands under energy transmission lines, Nanticoke, Ontario; 50,000 tonnes of soil cleaned- In-Situ pump and curtain wall system in an area of 200 acres
- For Zurich Insurance: Falconbridge Mines leak of bunker "C" fuel into a main water artery for the Dominican Republic, including forest and agricultural lands covering 4 miles; cleaned water, river banks and overflow areas; water flowed for two weeks
- For Ontario School Board Insurance: Largest Cleanup in Ontario history, remediating over 90,000 tonnes of soil; oil spill over significant agricultural area in excess of 200 acres

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Projects

Market Obligation- Today (2022)

Automotive shredder Residue

- Aligned with NGIF, Enbridge, and Gerdau S.A. in Whitby for metals recovery and RNG production
- Deployment of up to 30 units in Whitby alone

MSW- Plastics

- Destruction of all wastes and plastic for Clean Energy production- Ottawa Region
- Elimination of plastic bottles: Coca Cola, Nestle

Steel Production

- Use of HR to generate power needed for steel production: Stelco

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Performance

Project	Containment	Destruction/Removal Efficiency (%)	Target Criteria
US EPA-Oil Water; Bay City	PCBs	99.9999	99.9999
US EPA-Oil; Bay City	PCBs	99.9999	99.9999
General Motors Canada PCB Destruction	PCBs	99.999999	99.9999
Australia- PCB Oil	PCBs	99.999998	99.9999
Australia- DDT in Toluene	PCBs	99.999954	99.9999
Japan: PCB Oil	PCBs	99.99998098	99.9999
HCB Treatment	PCBs	99.999999	99.9999
US Army: GB and VX Nerve Agents	Nerve Agents	99.99999	99.9999
US Army: TNT, RDX, HMX in Artillery Shells	Explosives	99.99999	99.9999

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Environmental Process

Hydrogen Reduction Technology:

- No Atmospheric Emissions-Options for limited CO_2- internal opportunity in carbon market
- Accepted under CDM Methodologies
- Qualified and Quantified to *ISO 14064* for GHG emission reduction offsets
- Assist in meeting *Paris Accord GHG Reduction* targets (Article 6)
- Meets needs for Scope Reporting for industrial sales
- Output use increases Offset potential

Full Value Proposition: Environmental and Economic

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The Advantage

Hydrogen Reduction Technology

- Able to provide Options for inputs and output gas to meet economic, operational and environmental objectives
- Unique offerings for Port Users
- First International site for H_2 re-fuelling
- System Portability as required
- Deployments can be Replicated in other Jurisdiction

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Roadmap

Three Step Process

- Step 1: Relationship
  - Confirmation of Operating Partnership
  - Agreements and LOI/Financing
  - TE to provide all supporting documents to assist in Project Financing
- Step 2: Site Survey
  - On execution of the LOI and down-payment ($1M), a site visit to be executed to assess and fully understand the input materials (Waste Composition) and the desired output
  - Project Team visit to establish working protocols and relationships with local parties
  - Confirmation regarding the contractual use for energy production (integration needs- i.e., GE/Siemens Turbine) contact with Emera or other necessary partners and the Gov't as required
  - Confirmation of Business Case
  - Confirmation and testing to scale of input to desired output

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Roadmap

Three Step Process (cont'd)

- Step 3: Deployment
  - Further funding milestones will be provided on Contract execution
  - Manufacturing in Canada and Test runs
  - Transportation, installation and commissioning of a 50 bone-dry tonne module
  - Operational and Maintenance training executed in Canada and for local operating entities
  - Deployment and integration for input and output
  - Annual Audits to ensure maximum output
  - Flexibility for changing circumstances provided
- Visits can be arranged for future deployments operating in similar circumstances

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Next Steps

Questions