History

• Established in 2007
• Research, science and test facility construction completed by SAIC/ Leidos
• Patent ownership for Pristine and Pristine M technologies and patent pending on Pristine SA technology
• Patent cooperation treaty protection filed in all target countries
• Public traded company (OTCQB) ticker “CCTC”
• Testing successfully completed at the AES coal power utility in Oklahoma
• Kiewit Engineering was engaged for final testing and for the first commercial unit design
Partnerships

University of Wyoming

Kiewit

Jindal Steel & Power
Global Demand for Coal Continues to Rise
Majority of Available Coal is Sub-Bituminous

- **17%** LIGNITES 5.5-14.3 MJ/Kg
  1300-3400 K.Cal/Kg

- **64%** SUB BITUMINOUS 5.5-14.3 MJ/Kg
  2000-4000 K.Cal/Kg

- **18%** BITUMINOUS 18.8-29.3 MJ/Kg
  4450-7000 K.Cal/Kg

- **1%** ANTHRACITE 30+ MJ/Kg
  +7100 K.Cal/Kg

Over 80% of World Coal Reserves are Low-Rank Coals (LRC)
Current Status

• Test Facility Fully Tested in Oklahoma
  – Successful dehydration of coal
  – Successful beneficiation of coal (increase in btu value)
  – Successful stabilization of coal
  – Successful production of a dust free, stable end product

• Test Facility moved to Wyoming

• New location secured and permit application underway

• Simulation models completed by University of Wyoming to facilitate the design and engineering of first commercial unit

• License agreement signed with Jindal Power and Steel (India) and deposit paid on a license fee with Wyoming New Power (US)

• Several MOU’s outstanding with key clients in India

• Scheduled receipt of 500ton batch samples being sent for testing from India and Indonesia

• Partnerships in place with Austrade and three Australian Universities to research the benefits of our technology on Australian coal
Pristine M Process Flow

- Ambient air dryer
- Fines separator
- Dryer
- Devolatizer
- Stabilizer
- Volatile matter (VM)
- Carbon feedstock
- Product coal
- To combustor
- Water
- Light VM to combustor
Pristine M Product Advantages

- No moisture re-absorption
- No spontaneous combustion
- No size degradation
- Ideal gasifier feedstock
- Optimal level of volatile matter to maximize combustion
- Dust free end product reducing coal dust pollution when transporting coal
- Reductions in CO$_2$ and hazardous pollutants
- Low Capex based on US Construction (≈$3.50 per ton) and low OPEX based on US Labor (≈$3.00 per ton)
Pristine M Process Advantages

- Processing time is between 5-10 minutes
- Adjustable product specifications
- Variety of feed coals – process control and optimization through knowledge based PLC’s
- Accepts 50mm x 0 feed coal
- Ambient pressure
- Modular and scalable design
“There are proprietary features of the CCTI technology which have scope to be incorporated into our coal refinery concept what we have been working on now for over two years...The CCTI technology is proven at pre-commercial scale in the field and is an exciting and serious candidate”
Richard Horner, Director of Special Projects and Emerging Technology, University of Wyoming, October 2017.

“What CCTI have done is developed a very intriguing technology”
Richard Horner Director of Special Projects and Emerging Technology, University of Wyoming. November 2017
Coal by-products

- **Coal Tar**
  - Carbon Pitch 50%
  - Chemical Oils 20%
  - Creosote 30%
    - Naphthalene
    - Phthalic Anhydride
      - Primary End Markets
        - Aluminum and Steel Industries
        - Construction, Plastic and Paint Industries
        - Wood Treating and Carbon Black Industries
          - Primary Products
            - Carbon Anodes, Cathodes and Electrodes
            - Vinyl, Paint, Concrete and Fiberglass
            - Railroad Crossties, Utility Poles and Automobile Tires
Current Location at Fort Union, Wyoming
**Next Steps**

- Obtain permits from Wyoming DEQ
- Reassemble facility at Fort Union
- Receive 500 ton batches of coal from India and Indonesia for testing
- Client visits to Fort Union
- Completion of DOE technology review
- Complete design of commercial facility
- Execute on outstanding MOU’s
- Research by University of Wyoming on coal by-products using test facility
- Research on by-products with three Australian Universities in conjunction with Austrade (the commercial division of the Australian Government)
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