

## TUESDAY, MARCH 10, LEADING OFF SESSION (ROOMS B-C)

### KEEPING THE ENVIRONMENTALISTS AT BAY

**8:20-8:25 a.m.**

#### **Moderator Remarks and Introductions**

*Jessica Johnson, Conference Promotions Director; Senior Associate Editor, Wood Bioenergy*

**8:30-8:50 a.m.**

#### **Combating Misinformation Against Renewable Biomass Energy**

*Brian Rogers, National Spokesperson, Future Forest + Jobs*

The world's leading climate science authorities agree that renewable wood energy is a key component of any strategy to reduce carbon emissions and mitigate global climate change. Unfortunately, a small, well-funded and organized group of anti-forestry activists have launched a misinformation campaign attacking the biomass industry with distorted statistics and misleading claims. Future Forests + Jobs (FFJ), an initiative supported by the US Industrial Pellet Assn. (USIPA), uses facts and research to hold accountable those who spread misinformation about the industry.

**8:55-9:15 a.m.**

#### **Health of the Logging Ranks and Staying Ahead of Environmental Encroachment**

*Danny Druator, Executive Vice President, American Loggers Council*

Danny addresses loggers getting out in front of the environmentalists and presents findings from ALC's most recent survey, based on 580 responses, pertaining to the outlook for the near future for loggers across the United States as well as the need of markets to handle the small diameter timber that they are harvesting.

**9:20-9:40 a.m.**

#### **Community, Environmental, Economic, and Social Perceptions about Pellet Producers in the U.S. South**

*Dr. Richard Vlosky, Director, Louisiana Forest Products Development Center, School of Natural Resources, Louisiana State University*

Rich provides insight into the wood pellet manufacturing industry from the perspective of residents in the U.S. South, focusing on environmental, social and economic issues. The region is the largest producer and exporter of wood pellets in the world. This study, based on a survey sent to randomly selected residents, rural and urban, who live near selected pellet mills, is the first of its kind to expand the research to investigate in-depth socio-economic dynamics and fill a general gap in knowledge of the relationship between the wood pellet industry and public supply-side issues in the region from the perspective of communities influenced by the pellet sector.

**9:45-10:05 a.m.**

#### **Wood Is the Most Carbon Friendly and the Least Expensive Feedstock for Electricity Generation**

*Dr. Puneet Dwivedi, Associate Professor Forest Sustainability, Warnell School of Forestry and Natural Resources, University of Georgia*

In Georgia the coal-based electricity generation emitted 26% of the total greenhouse gas (GHG) emissions in 2016. Considering the availability of biomass resources in the state and advent of emerging technologies like torrefaction, biomass-based feedstocks could be directly used in existing coal-based power plants. Puneet examines economic and environmental analyses of electricity derived from nine feedstocks over 25 years relative to coal-based electricity in Georgia. Pine chips were the least expensive and the least GHG intensive option for generating electricity, with the lowest abatement cost. A carbon tax could make bioenergy feedstocks found in Georgia competitive against coal for reducing carbon emissions from the electricity sector.

### MORNING KEYNOTERS SESSION (ROOMS B-C)

**10:40-10:45 a.m.**

#### **Welcoming Remarks and Introductions**

**Rich Donnell, Conference Co-Chairman; Editor-in-Chief, Wood Bioenergy**

**10:50-11:15 a.m.**

#### **How Renewable Wood Energy Can Help Solve the Climate Crisis**

*John Keppler, Chairman & CEO, Enviva*



There is no question that the greatest challenge facing us today is the growing climate crisis. As we turn to all the tools in our arsenal, the science is clear on the need for renewable energy to help meet our shared climate goals. In his remarks, John provides an overview of the role that Enviva and the renewable wood bioenergy industry play as a part of a broader, modern solution that addresses many of the country's most pressing environmental and economic concerns.

**11:20-11:45 a.m.**

#### **Partnering for Growth**

*Scott Bax, Chief Operating Officer, Pinnacle Renewable Energy*



People, safety and culture are at the heart of Pinnacle's growing wood pellet business. Over the past two decades, Pinnacle has partnered with some of the world's leading forestry companies to build safe, reliable and productive wood pellet plants. As of 2020, Pinnacle has partnered with five different forestry companies—Westerfelt, Tolko, Canfor, West Fraser and Two Rivers Lumber—at six different pellet plants in both Canada and the United States. Two of these facilities are currently under construction, one in High Level, Alberta, Canada and the other in Demopolis, Alabama. These partnerships have allowed Pinnacle to focus on using sawmill residuals in its pellet production, providing our partners with a reliable home for their residuals and providing our customers with quality pellets safely and on time.

**AFTERNOON KEYNOTERS SESSION  
(ROOMS B-C)**

**1:05-1:10 p.m.**

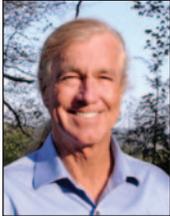
**General Remarks and Introductions**

*Dan Shell, Senior Editor, Wood Bioenergy*

**1:15-1:40 p.m.**

**What Is the Future for Industrial Wood Pellets?**

*Dr. William Strauss, President, FutureMetrics*



The industrial wood pellet market grew from 5 million metric tons in 2010 to more than 22 million metric tons in 2019. Among the major producing and exporting nations, the U.S. is the largest exporter of wood pellets. Bill discusses the expected evolution of carbon emissions reduction policies around the world that will support current demand and will support future demand growth. He also talks about where that demand for pellets will grow, by how much it could grow, and how, where and why new pellet factories will be built to match demand. The talk includes a discussion of sustainability and how that is necessary for the industry to credibly supply a low-carbon solid fuel alternative to coal.

**1:45-2:10 p.m.**

**Differences on How Biomass Is Produced and Delivered in Europe vs. the U.S.**

*Raul Kirjanen, CEO, Graanul Invest*



Graanul Invest, with the acquisition of pellet production assets in Texas, is producing pellets now on both sides of the Atlantic Ocean. The founder and CEO elaborates on the differences the way biomass is sourced, processed and delivered on either side of the Atlantic Ocean. He also looks at what are the implications of these differences in the future and how they affect the business now and in the future.

**CONCURRENT SESSIONS  
ADVANCED PELLET TECHNOLOGIES  
(ROOM B)**

**2:40-2:45 p.m.**

**Moderator Remarks: Is It Time to Move to Pellets 2.0? What Is the Technical and Economic Status of Advanced Pellet Technologies?"**

*Dr. William Strauss, President, FutureMetrics*

Steam exploded or torried pellets produced by thermal treatment have been promised for years as a better option to white pellets. They have higher energy per cubic meter, some exhibit hydrophobic characteristics, and in general they require less modifications to pulverized coal power plants that want to co-fire or fully switch from coal to pellet fuel. However, the promises have consistently failed to come true due to technological shortcomings, their inability to compete with white pellets on a dollars per delivered energy cost basis, and to some degree, market inertia in a sector where more than 25 million tonnes of white pellets will be used in power stations in 2020. The panel members discuss the latest in technology advances and how their product can breakthrough and compete in the global industrial pellet sector.

**2:50-3:10 p.m.**

**Advanced Pellet Fuel from a Proven Technology**

*Bjorn Halvard Knappskog, CEO, Arbaflame*

This presentation looks at the history of the development of Arbaflame steam exploded (SE) pellets; characteristics of Arbaflame advanced pellets; how biochemical production complements the SE pellet production process; and examines current and future production and demand for SE pellets.

**3:15-3:35 p.m.**

**Current Status of Torrefaction Technology**

*Andrew Johnson, Vice President, TSI*

Andrew presents an overview of torrefaction technology based on ongoing projects in Europe, North America and Southeast Asia. He looks at feedstocks, process challenges, pellet attributes, markets for torrefaction and opportunities for advancing the process.

**3:40-4:00 p.m.**

**Realizing the Green Gold with BioTrac Continuous Steam Explosion System**

*Mats Arnborg, Director, Biomass Conversion, Valmet*

Pretreatment of biomass using, for example, steam explosion is a robust technology which has been further developed and refined by Valmet. Valmet is a global technology and service provider with a long experience of delivering large commercial projects worldwide. Currently Valmet is in the delivery phase of several commercial full-scale pretreatment systems using continuous steam explosion, BioTrac, and one of the commercial projects in Europe is aiming for black pellets. The presentation introduces you to Valmet's project capabilities and the pretreatment system BioTrac with references.

**4:05-4:25**

**Chemo-Mechanical Cellulose Explosion**

*Tim Wagler, CEO, Trinity Green Derivative Products*

Steam explosion is a long existing technology used in the pulping process. Due to its high cost, high energy consumption and low throughput and batch production mode, the technology has not been widely used commercially. Members of Trinity Green Derivative Products have developed a breakthrough technology to overcome all the above mentioned shortcomings of traditional steam explosion. The process is called Chemo-Mechanical Cellulose Explosion (CMCE), which is a continuous, high efficient and low cost process to convert green wood chips and other lignocellulosic materials to a dried, entangled fiber that is ready for the next steps of producing value-added products. The technology behind this process is presented and discussed in detail. A demonstration plant will be built based on this technology and it will be presented as well.

**AIR EMISSIONS TREATMENT  
(ROOM C)**

**2:40-3:05 p.m.**

**EPA's Final ACE Rule and Its Bioenergy Implications**

*Scott Osbourn, Principal, Trinity Consultants*

Scott addresses EPA's Affordable Clean Energy (ACE) Rule, which replaces the Clean Power Plan (CPP), as well as the ACE Rule's considerations and implications with respect to biomass. An overview and potential impacts from the final ACE rule, issued by EPA on June 19, 2019, are presented, including comparisons of ACE to the CPP in certain key areas, as well as a discussion of the "best system of emission reduction" (BSER) and Section 111(d) implementation. Finally, consistent with EPA's proposed "inside-the-fence" interpretation of BSER under Section 111, the implications with respect to bioenergy carbon neutrality are discussed.

**3:10-3:35 p.m.**

**Catalytic Removal of VOCs and HAPs at Wood Pellet Plants**  
*Grigori Bunimovich, owner and COO, Matros Technologies*

The presentation overviews using catalysts in regenerative thermal oxidizers removing VOCs and HAPs emissions after hammer-mills, pellet presses and coolers. Using the catalyst reduces RTO operating temperatures and enables substantial savings in natural gas consumption. Additional benefits include reduction in NOx and CO2 emissions. Matros focuses mostly on application of base-metal catalysts composed of manganese and other transient metal oxides. The presentation covers case studies of base-metal catalyst in composite board and wood pellet industries, and describes catalyst performance monitoring and maintenance including laboratory testing of catalyst samples collected from RCOs and catalyst regeneration via bakeout.

**3:40-4:05 p.m.**

**Advancement in WESP Design for Dryer Particulate Control**  
*Rodney Schwartz, Vice President Sales & Business Development Americas, Dürr Systems*

Dürr went out and spoke to customers about what they liked and didn't like about current WESP designs and operation, brought the information back, and is now ready to introduce a new WESP product addressing the feedback it received. Rodney highlights specific design enhancements, and once again reinforces the power of utilizing a to-scale pilot unit to prove out the concepts and ideas before bringing them to the market.

**4:10-35 p.m.**

**The Quest for the BEST in Pellet Mill Air Emission Control**  
*Rodney Pennington, Senior Director, NESTEC*

More than seven WESP and/or RTO/RCO systems have been installed and/or purchased in the pellet industry in the past year. The systems included upgrades and conversions to existing WESPs and RTOs as well as a unique new total system approach with an \$800,000 plus savings in capital equipment. Rodney provides details and photos for conversion to a simple poppet valve assembly; conversion to an upflow WESP eliminating high maintenance and reducing energy consumption; and installation of a total air emission control system approach, reducing capital and operating costs while providing a more simplified installation.

## DUST MANAGEMENT (PINE ROOM)

**2:40-3:05 p.m.**

**The Combustible Dust Hazard Analysis**

*Jeff Nichols, Managing Partner, Industrial Fire Prevention*

NFPA standards state: "Where dusts are determined to be combustible or explosible, the hazards associated with the dusts shall be assessed and mitigated." Often, engineering controls are applied without first understanding the hazard and its implications. A detailed combustible dust hazard analysis is a systematic analytical study of a facility and its processes to identify combustible dust hazards to employees, property, and the public at large. It evaluates various scenarios that can potentially lead to dust or fire explosions, and provides a path forward to prevent and mitigate those consequences. The DHA is the first critical step in the mitigation of combustible dust hazards and provides a solid scientific basis for the implementation of other requirements such as engineering controls and standard operating procedures.

**3:10-3:35 p.m.**

**Total Dust Management – Production Done Safely**

*Greg Bierie, Sales & Technical Specialist, Benetech USA*

Benetech is recognized globally as a Total Dust Management (TDM) solutions provider. Its emphasis is dust, spillage, material flow, and safety. This presentation focuses on problems and solutions in the wood biomass industry with safety as the first priority. Biomass production includes the handling of wood chips, wood pellets and similar renewable wood product resources. The result of product degradation is increased combustible dust. The conveyors handling this product require special attention to the design of chutes and dust extraction systems. Benetech is a provider of engineered chutes throughout North America with more than 500 successful installations. Another part of the Benetech TDM tool box includes dust extraction systems, flow aids, pile management, protection and surface dust control.

## WEDNESDAY, MARCH 11 MORNING KEYNOTERS SESSION (ROOMS B-C)

**8:20-8:25 a.m.**

**Welcoming Remarks and Introductions**

*Fred Kurpiel, Conference Co-Chairman; President, Georgia Research Institute*

**8:30-8:50 a.m.**

**Dynamics of the Global Pellet Market and Impact to North American Supply**

*José González, Senior Principal, ÅF Pöyry*



The demand for wood pellets globally is largely developing in two distinct regions, Europe and Asia-Pacific, but they also have some upcoming challenges. The European industrial pellet market offers stable and reliable off-take; however, with incentive schemes in the UK and the Netherlands set to end around 2027 demand in this market could be facing a decline, although with an upside as there is still need for flexible low-carbon power generation and some countries have committed to exit coal, but whether biomass will take its place is still rather uncertain. As a result many producers are now looking toward Asia-Pacific, where demand in South Korea and Japan is expected to grow considerably in the coming years. Though there is still uncertainty as to the exact extent of the market, requirements for supply volumes are substantial, and in particular Japanese customers have shown that they value reliable supply sources, which puts North America on top of their shopping list. This demand is also expected to mainly develop before the likely contraction of the European market in 2027, leading to an important question for many North American pellet producers: Which market should they prioritize?

**8:55-9:15 a.m.**

**Executing Projects in the Digital Age**

*Bijan Shams, President, Cogent Industrial Technologies*



The digital age is having a transformational impact enabling industrial operations with a competitive advantage. This presentation shows how deployment of digital platforms is significantly improving the management of projects and how these platforms are transitioned from project to operations to manage and improve operational performance. Bijan shares the complexity and challenges of delivering a project and managing

post-project operational performance issues and how digital platforms can significantly improve the outcome of both as well as provide a platform for Industry 4.0 initiatives.

**9:20-9:40 a.m.**

**Non-Wood Bioenergy Crops + Wood for Sustainable Energy Production**

*Wendy Owens, CEO, Hexas Biomass*



Sustainable, closed-loop bioenergy crops can supplement or replace wood in a variety of bioenergy applications. One such crop is giant reed. It is perennial and fast growing, with high yields year-over-year. It is highly pest-resistant, grows in different climates and soil types, tolerates drought, is an EPA-approved bioenergy crop, and has low ecological demand. In direct combustion, testing has shown giant reed burns

at about 8,000 BTU/lb. and, when torrefied, giant reed burns at around 10,400 BTU/lb., a significantly higher energy density than other bioenergy crops. This presentation discusses the benefits of supplementing wood bioenergy material with a sustainable bioenergy crop to achieve equal energy production levels and potentially lower cost. Past initiatives to replace coal with torrefied giant reed for long-term energy production are discussed. An overview of raw material supply, logistics, and production that can support long-term contracts and ease wood bioenergy supply demands while having a carbon negative environmental impact are presented.

**9:45-10:05 a.m.**

**Using Data Mining and Big Data to Assess Risk in the Biomass Supply Chain**

*Dr. Timothy Young, Professor, The University of Tennessee, Center for Renewable Carbon*



Predictive analytics, data mining and the use of big data are paramount to success for business endeavors of today. Data mining and big data are fundamental to the fourth industrial revolution known as Industry 4.0., i.e., where computers and automation come together in a new way, with remote connectivity to computer systems equipped with machine learning algorithms that are predictive. The bioenergy and sustainable biomaterials

industries exist in highly competitive commodity markets, where competitive advantage is sought by lowering the final costs of manufactured product. This presentation outlines the use of advanced data mining analytics using big data that are fused from a multitude of geospatial, climatology, demographic, and geophysical data sources to assess “cost-risk” in the biomass supply chain. Advanced data mining analytics is used to predict optimal locations for bioenergy plants in the Eastern United States.

**CONCURRENT SESSIONS  
WORKING FORESTS  
(ROOM B)**

**10:40-11:05 a.m.**

**North American Timberland and Forest Industry Capital Investment Trends**

*Andrew Copley, Project Manager/Senior Analyst, Forisk Consulting*

This session explores both ownership and capital investment trends. It delves into the largest timberland owners and highlights how acres have shifted across ownership types and geographic regions over time. It also examines the changes to wood demand in specific forest product and bioenergy manufacturing sectors and how these actual and expected changes relate to fiber prices.

**11:10-11:35 a.m.**

**Hurricane Michael’s Impact on Timber Supplies**

*Devon Dartnell, Director, Market Analysis & Research, Georgia Forestry Commission*

Devon discusses the devastating effects of Category 5 Hurricane Michael on the timber and biomass supply systems in the path of the storm. He provides an assessment of damage caused by Hurricane Michael to timber resources in northwest Florida and southwest Georgia and reviews salvage and reforestation operations in the aftermath. He addresses what effect the storm will have on future biomass and timber supplies for area mills.

**11:40-12:05 p.m.**

**Forest Utilization Within a Circular Bioeconomy**

*Dick Baldwin, Managing Partner, Oak Creek Investment*

The growing capability to use young small-diameter logs from a wide variety of species as raw material for wood products, pellets and fuel is expanding the environmental virtues of the working forest. These benefits are optimized by finding the highest and best applications for all biomass fiber. An analysis of the economic and environmental benefits is readily understood through the “Circular Bioeconomy” framework. This conceptual framework establishes the key role that wood products play in the forest lifecycle and provides suggestions on improving forest and forest product management. The model itemizes and advocates sustainable and balanced forest management through eliminating waste, adding economic value (or minimizing lower value products), and recycling/repurposing throughout the entire forest and wood fiber lifecycles. Researchers continue to refine this increasingly effective model with the purpose of better identifying and maximizing environmental and economic value from working forests.

**PROJECT IMPLEMENTATION  
(ROOM C)**

**10:40-10:45 a.m.**

**Moderator Remarks and Introductions**

*Harold Arnold, President, Fram Renewable Fuels*

**10:50-11:10 a.m.**

**Using Knowledge Management Initiatives to Achieve Successful Project Implementation**

*Justin Price, Principal, Evergreen Engineering*

This presentation aims to analyze different influencing factors to knowledge management initiatives in the project companies choose to execute. It presents a model of critical factors, which have deep impacts for failure or success of projects. Based on literature and the survey-based research results, it presents the most significant barrier for successful initiatives in projects. It highlights key metrics for developing successful projects and how these metrics can be tracked through the lifecycle of the project.

**11:15-11:35 a.m.**

## **Project Execution – Modern Tools and Classic Principles**

*Scott Stamey, Vice President/Sr. Project Manager, Mid-South Engineering*

Good project execution principles are rarely new, but the tools we use to plan and execute difficult projects have improved drastically over the years. This presentation gives a brief overview of some of the new technology being used to reduce risk, improve quality, and speed up project delivery. Scott looks at examples of how these modern tools and classic principles have been put to use on complex projects.

**11:40-Noon**

## **We Know a Thing or Two Because We've Seen a Thing or Two**

*Tom Lepak, VP Business Development, Casey Industrial*

Ever wonder why some industrial projects flounder while others succeed? Lessons learned during Casey Industrial's 82-year history of industrial plant construction have identified project execution attributes which should be avoided and those which should be mandatory. Yes, it's good to be lucky, but implementing the right elements should help lessen and even eliminate speed bumps as you begin your next capital project.

## **PROCESS TECHNOLOGIES (PINE ROOM)**

**10:40-11:05 a.m.**

### **Smart Material Handling – Good designs Are NOT More Expensive**

*Tim Brown, Business Development Manager, Biomass Engineering & Equipment*

This presentation educates you about the latest improvements and how to apply them to your biomass material handling challenges. It looks at smart vs. dumb designs; shows that good designs are flexible, reliable, redundant and therefore more reliable; shows that when the total installed cost is considered, good designs are cheaper; shows why material handling "must" be a part of the integrated plant design rather than an afterthought; and looks at the long-term operational cost savings of good designs

**11:10-11:35 a.m.**

### **The Lifeblood of Your Plant**

*Peter Smyth, Industry Sales Manager, C.C. Jensen*

As much as 80% of all machine failures are caused by contamination in the oil. Pro-active methods for dealing with this can save considerable costs over time. Peter discusses the damage that can be done by oil contamination and ways to prevent it and how to remove it. Through several industry specific case studies Peter covers best practices in oil handling, storage and sampling as well as how to use oil analysis to your advantage. The most effective methods to keep contaminants out of your oil in the first place are explained. He also looks at the biggest contaminants and how to identify if you have problems and the latest techniques for dealing with issues if they arise, via the latest technology available in oil filtration. Oil is an asset, not a consumable. You should leave this presentation with the knowledge of how to best take care of that asset and save your company money.

