

DOE Bioenergy Technologies Office: Overview of Feedstock Supply & Logistics and Sustainability Programs

Incorporating Bioenergy into Sustainable
Landscape Designs Workshop
New Bern, NC, March 4-6, 2014

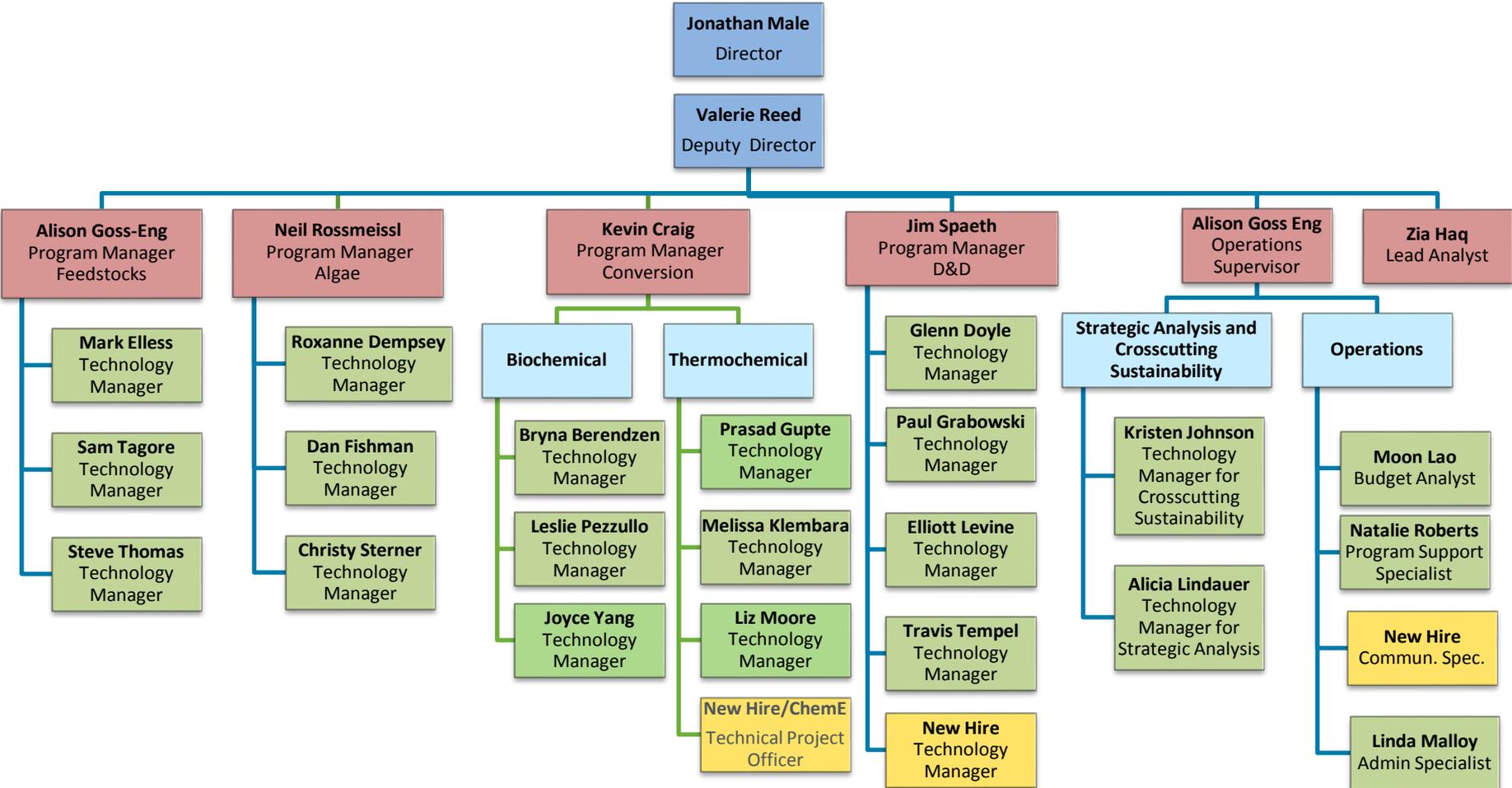
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EERE at a Glance



Bioenergy Technologies Office Organizational Chart



Bioenergy Technologies Office

Objective: Through targeted RDD&D, enable sustainable, nationwide production of advanced biofuels that that will displace a share of petroleum-derived fuels, mitigate climate change, create American jobs, and increase U.S. energy security.

Research, Development, Demonstration, & Deployment

Cross Cutting

Feedstock Supply

Develop sustainable and affordable feedstock supply and efficient logistics systems.



Conversion R&D

Develop commercially viable technologies for converting feedstocks into liquid transportation fuels and products.



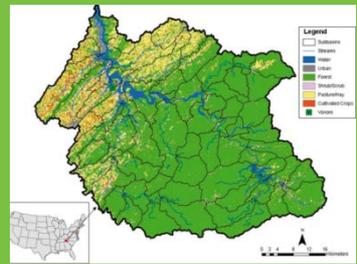
Demonstration & Deployment

Validate integrated technologies at cost-shared pilot, demonstration, and commercial scale facilities.



Sustainability

Promote the positive economic, social, and environmental effects of bioenergy.



Strategic Analysis

Conduct market, policy, environmental, and other analyses to inform planning and decisions.



Terrestrial Feedstocks: Objectives

RD&D on feedstock production and logistics is critical to developing a reliable and sustainable supply of high quality, low cost feedstock necessary for the expansion of the U.S. advanced biofuels industry.

- **Supply:** Support the sustainable production of a variety of types of biomass.
- **Logistics:** Support research and demonstration on economic, sustainable feedstock logistics systems to reliably supply an on-spec feedstock to future biorefineries.
- Focus on **cost, quality, quantity.**

Terrestrial Feedstocks: Upcoming Activities

- Conduct two workshops focused on landscape design and sustainability of herbaceous and woody feedstocks for bioenergy applications.
- Integrate the latest available environmental sustainability criteria into biomass supply assessments.
- Establish a framework for promoting sustainable biomass production practices that consider productivity, soil quality, water quality and quantity, greenhouse gas emissions, air quality, biodiversity, and social aspects of sustainability.
- Develop integrated landscape management designs for reducing cost, increasing volume, and improving environmental impacts over monocultures.
- Validate sustainable feedstock supply and logistics cost of \$80/dry ton at conversion reactor throat at commercial volumes for at least one biochemical and one thermochemical conversion process.

Key Sustainability Priorities and Areas of Focus

- Quantify metrics/indicators across the bioenergy supply chain to understand impacts, synergies and trade-offs, and areas for improvement
- Increase biomass production and land productivity while maintaining or improving environmental performance, ecosystem services, and social benefits
- Develop, identify, and promote more sustainable practices through publications, decision-support tools, and stakeholder interactions
- Advance understanding and implementation of landscape design and integrated land management



BETO-Supported Projects Relevant to Landscape Design

- Biomass Production and Nitrogen Recovery (ANL)
- Designing Sustainable Landscapes (ORNL)
- Water Quality and Biodiversity (ORNL)
- Sustainable Feedstock Production-Logistics Interface (INL)
- Economics of Integrated Landscape Management (INL)
- Short Rotation Woody Biomass Sustainability (ORNL, USDA-USFS, U. of Georgia, Oregon State U., U. of Saskatchewan)
- Optimization of Southeastern Forest Biomass Crop Production (NCSU/Weyerhaeuser)
- Watershed Scale Optimization to Meet Sustainable Cellulosic Energy Crop Demand (Purdue University)
- Pathways Toward Sustainable Bioenergy Feedstock Production in the Mississippi River Watershed (University of Minnesota)



Workshop Objective and Goals

- Identify key principles, definitions, opportunities, challenges, and next steps towards incorporating bioenergy into sustainable landscape designs.
- Summary report that enables diverse stakeholders to benefit from the discussion and move forward with next steps.
- Because the implementation involves multiple stakeholders, we hope the discussion and exchanges are beneficial to all of those involved.

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