Deployment in the Eastern Europe and Central Asia

4th Bioenergy Week
Budapest,
21-24 June 2016
Who we Are

**Beta Renewables** is a JV between Biochemtex, TPG (Texas Pacific Group) and Novozymes.

**Biochemtex** is a the Engineering company of the M&G Group and BR’s provider of key equipment.

**Novozymes** is the world’s leading supplier of enzymes to the biofuel industry.

**TPG** is a world-class private investment firm with 48B$ under management.
**What we do**

**BETA RENEWABLES** owns and licenses PROESA™ technology, used to produce advanced biofuels and chemicals, invests in continuous R&D for process improvement, provides performance guarantees and supports licensees on biomass supply chain and/or product offtake.

**BETA RENEWABLES** owns and operates the 1st commercial-scale 2G ethanol plant in Crescentino (Italy) producing cellulosic ethanol since 2013.
Our experience with PROESA™ Technology
Energochemica - Strazske, SK

Feedstock: Wheat straw and others
Ethanol Capacity: 55,000 MT/Y

Project kick off: October 2014
BBI Flagship 21M € grant
Plant Start up, 2017
Eastern Europe

Local 1G producers, oil&gas groups and chemical companies are closely looking to PROESA™ investment today.

Beta Renewables completed several Feasibility Studies and commercial offers for collocation of 2G beside 1G or retrofit of refineries and sugar factories.

Studies for the Supply Chain have also been commissioned in the last 4 years to Beta Renewables to investigate the best feedstock mix or crop cultivation for a typical PROESA™ biorefinery.

Typical Biorefinery size: 50,000 tons ethanol/year.

Typical Feedstock Mix: Agricultural residues (wheat straw, corn stover, rapeseed straw etc).
Central Asia

Increasing contacts/projects thanks to the huge biomass availability at competitive price

Historically devoted to agriculture, these regions count several Agro Holding Groups capable to collect biomass for future refinery and ready with their logistic fleet to export ethanol to the best offtake place

1G industry is still in development and **2G could also anticipate it**

Sugar industry is declining ➔ **2G opportunity**

Low production cost as driver
Opportunities and Challenges

Many opportunities despite few challenges
Opportunities in the regions

Opportunities

Optimal **biomass availability and cost**

No strong competition for straw with other existing industries

Unused land for energy crops cultivation

 Strategic eligible areas for future export to the European ports

Lower CAPEX & OPEX

Local key investors with **long term perspective strategies** on the future of biofuel

Availability of **structural funds at EU level** for project deployments
Challenges

Collection of biomass is not yet a common practice in agriculture

Need to implement the typical equipment for collection and relevant investment

No political support from authorities for advanced biofuels deployment

No mandates for advanced biofuels in place

In Central Asia 1G industry has not yet taken off, 2G industry could not benefit from existing know-how
We thank you for your attention and welcome your next visit in our plant in Crescentino!