Beta Renewables

Strategy & Status

Beta Renewables: Sustainable Chemistry

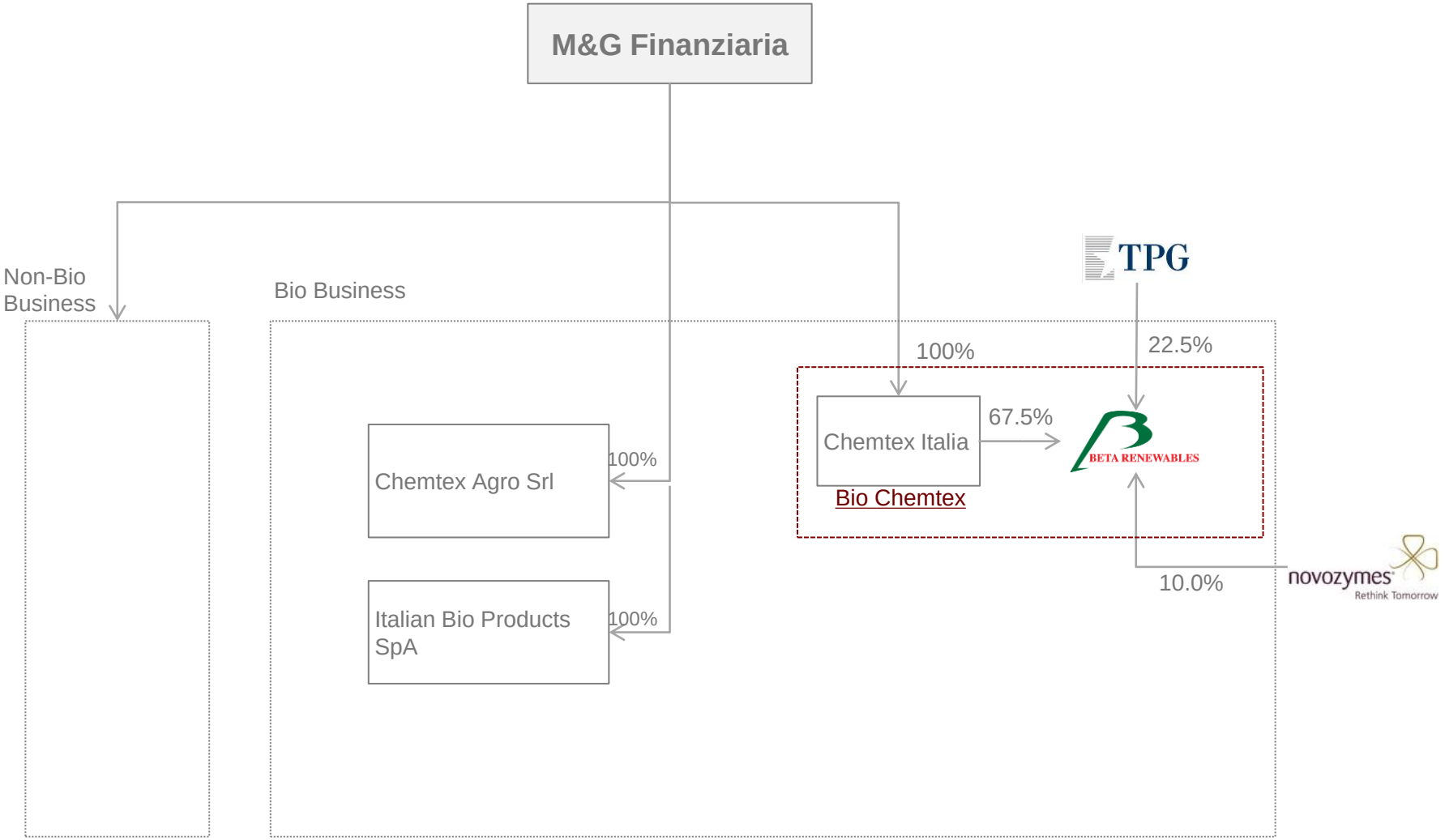
Beta Renewables is a joint venture, created in October 2011, between Chemtex and the investment firm TPG (Texas Pacific Group)

Novozymes, Denmark-based world-class biotech company acquired **10% share** of Beta Renewables in October 2012

Beta Renewables owns and licenses the **Proesa®** technology

1st commercial-scale 2GE biofuels plant in Crescentino (Italy)

Beta Renewables – JV Structure



Our Business Model

Technology Provider

- ✓ Owns the PROESA ® technology
- ✓ Invests in the R&D for continuous process improvement
- ✓ Licenses the technology worldwide
- ✓ Provides performance guarantees
- ✓ Supports licensees on biomass supply chain, off-take, financing
- ✓ Will own/operate the commercial site in Crescentino, Italy

Engineering & R&D

- ✓ Exclusive engineering partner
- ✓ Supplies, at a minimum, a basic engineering and key equipment package
- ✓ Provides mechanical guarantees
- ✓ Qualifies EPC contractors
- ✓ Conducts R&D activities on behalf of Beta
- ✓ Support in commissioning, start-up and training

Beta Renewables + Novozymes

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+

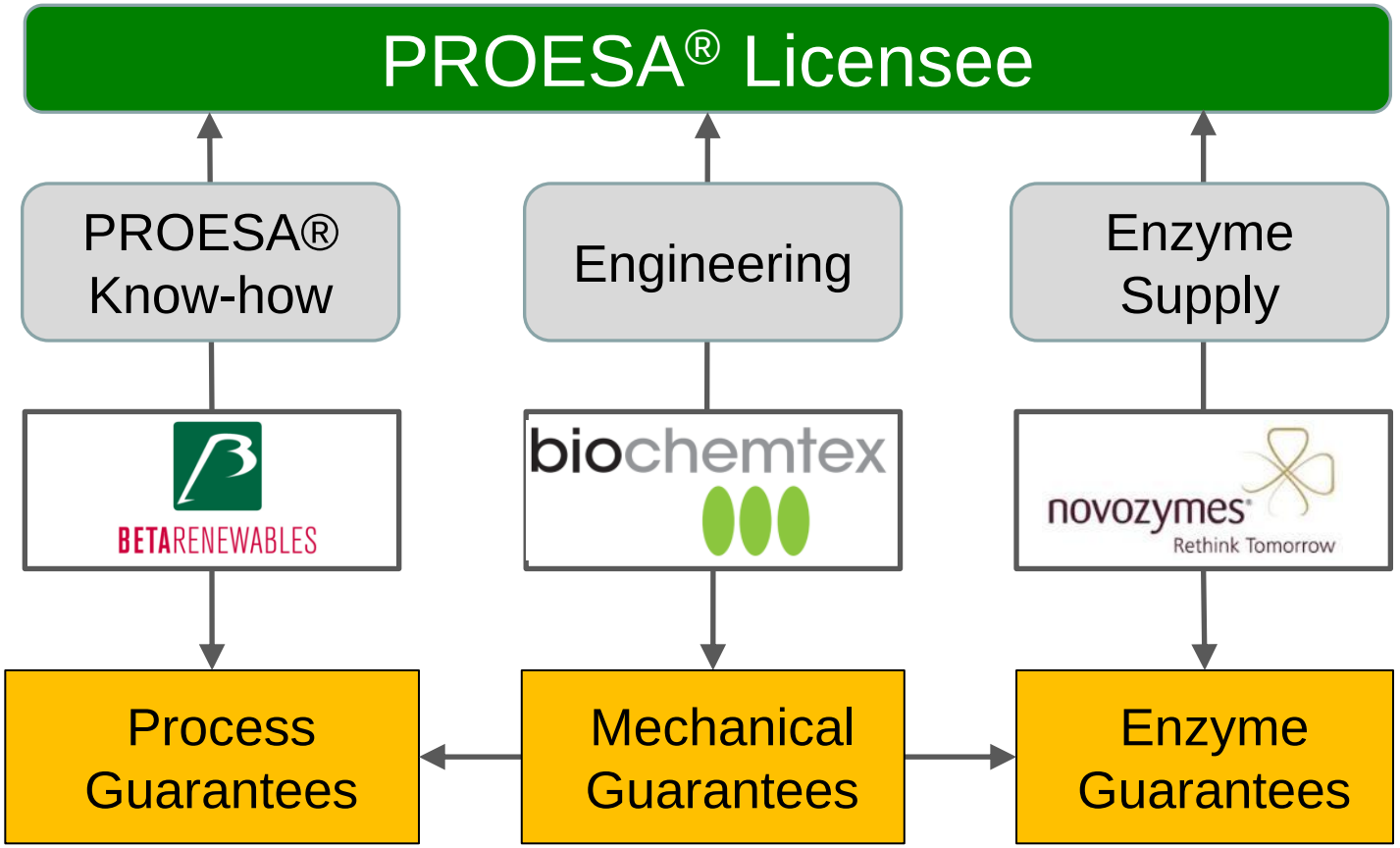
novozymes®
Rethink Tomorrow

To Jointly Develop &Market PROESA® and CTEC®

- ✓ Beta Renewables and Novozymes have both a co-marketing and a joint development agreement in place
- ✓ Long-standing collaboration has led to substantial reduction in cost of enzymes per unit of cellulosic ethanol
- ✓ Partnership of two industry leaders boosts confidence in the technology
- ✓ Guarantees on enzyme performance and cost incidence de-risks the technology
- ✓ Parties are committed to ongoing improvements in enzymes and process
- ✓ Ensuring secure and most competitive enzyme supply to our customers

Our Joint Value Proposition: a Solid Foundation

To de-risk the technology, enabling profitable deployment and bankable projects



Support throughout a PROESA® Project's Lifecycle

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Enable

Development

- Project feasibility study and investment estimates
- Qualify feedstock in pilot plant
- Optimize process parameters and enzymes for feedstock
- Support in the development of a biomass supply chain (Chemtex Agro)
- Support in financing

Deploy

Engineering | Construction

- Basic engineering package
- Qualify EPC contractors
- Permitting support and procurement of critical equipment
- Support in the construction and start-up of the plant
- Start-up and training

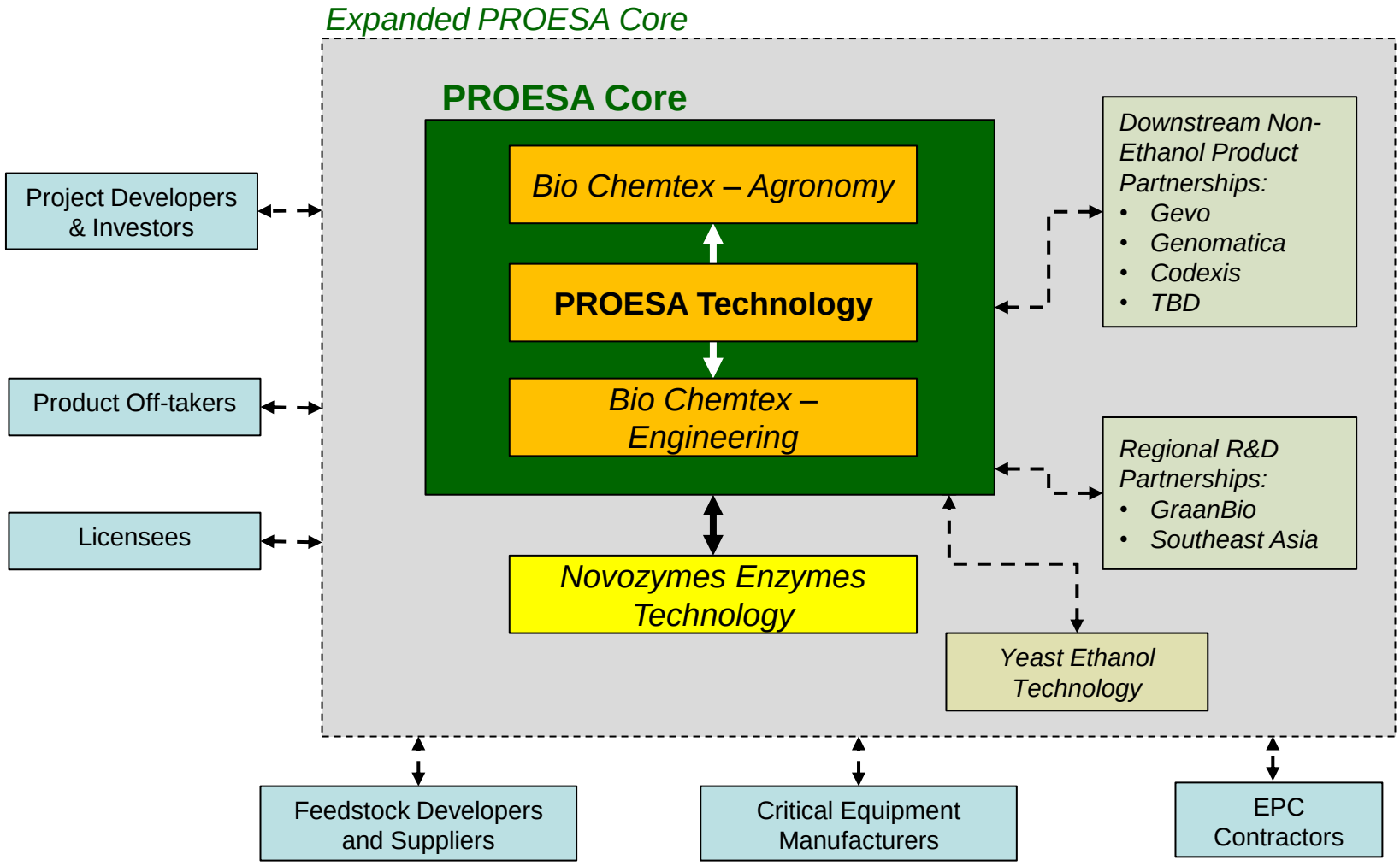
Empower

Start-up | Operations

- Support in establishing product off-takes
- Ensure joint performance guarantees hold
- Provide ongoing customer support
- Supply of enzymes and yeast (through our biotech partners)

Strategic Partnerships

Beta Renewables is continuing to establish partnerships across the entire technology and deployment value chain to capitalize on its' 1st mover advantage



PROESA®: A Platform Technology

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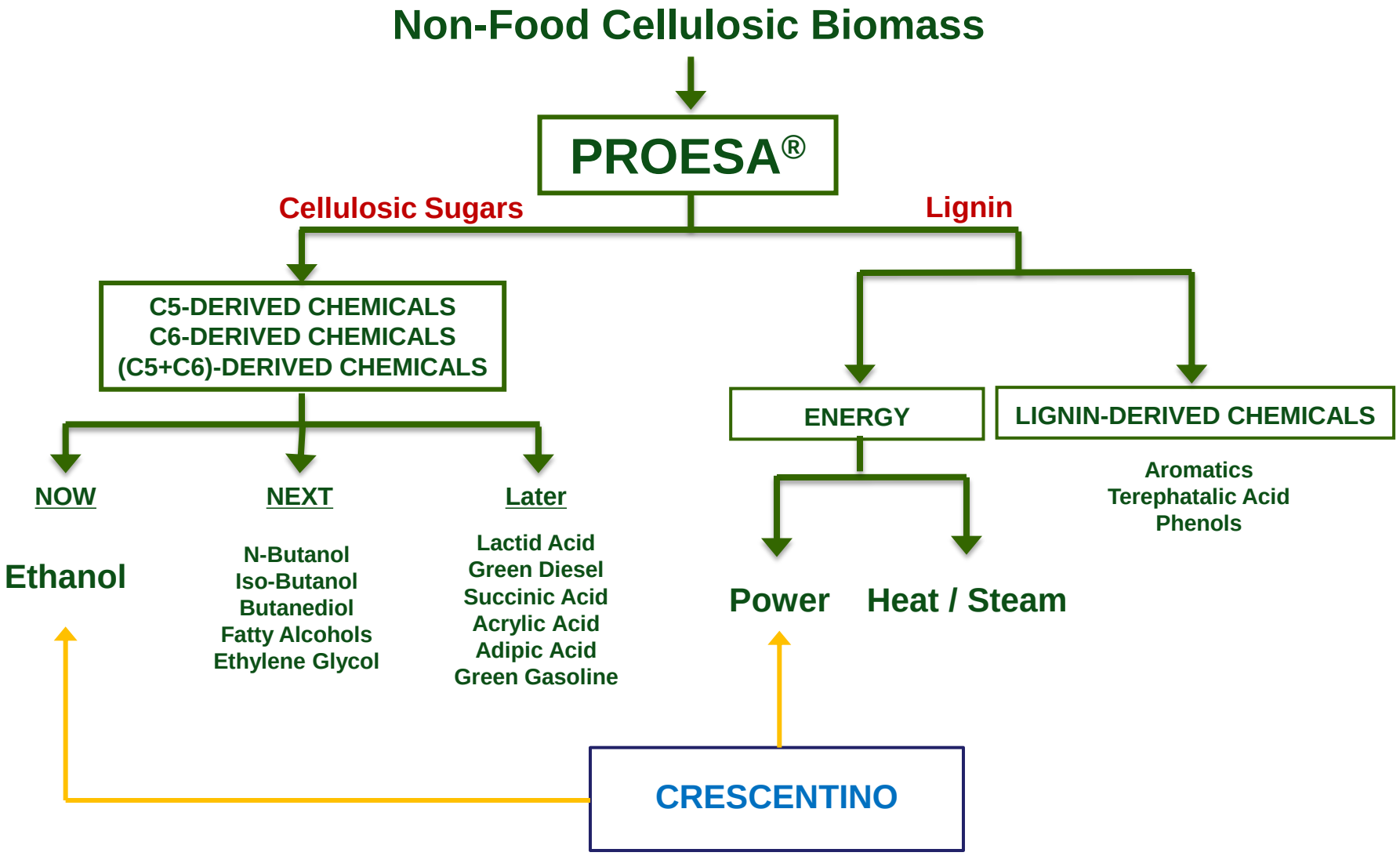

The PROESA® Process in a Nutshell

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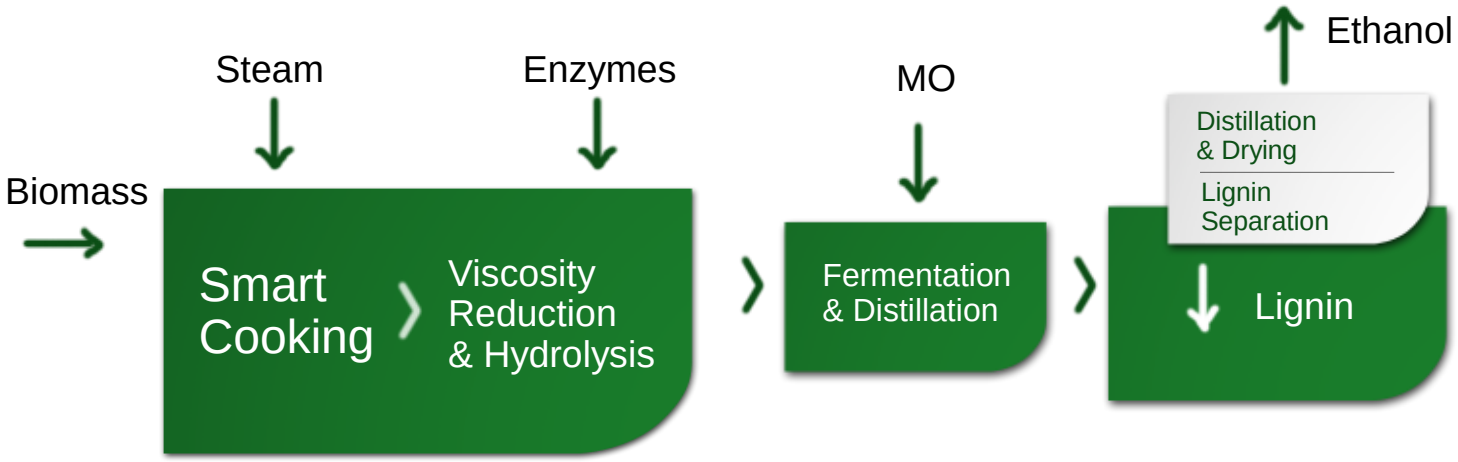
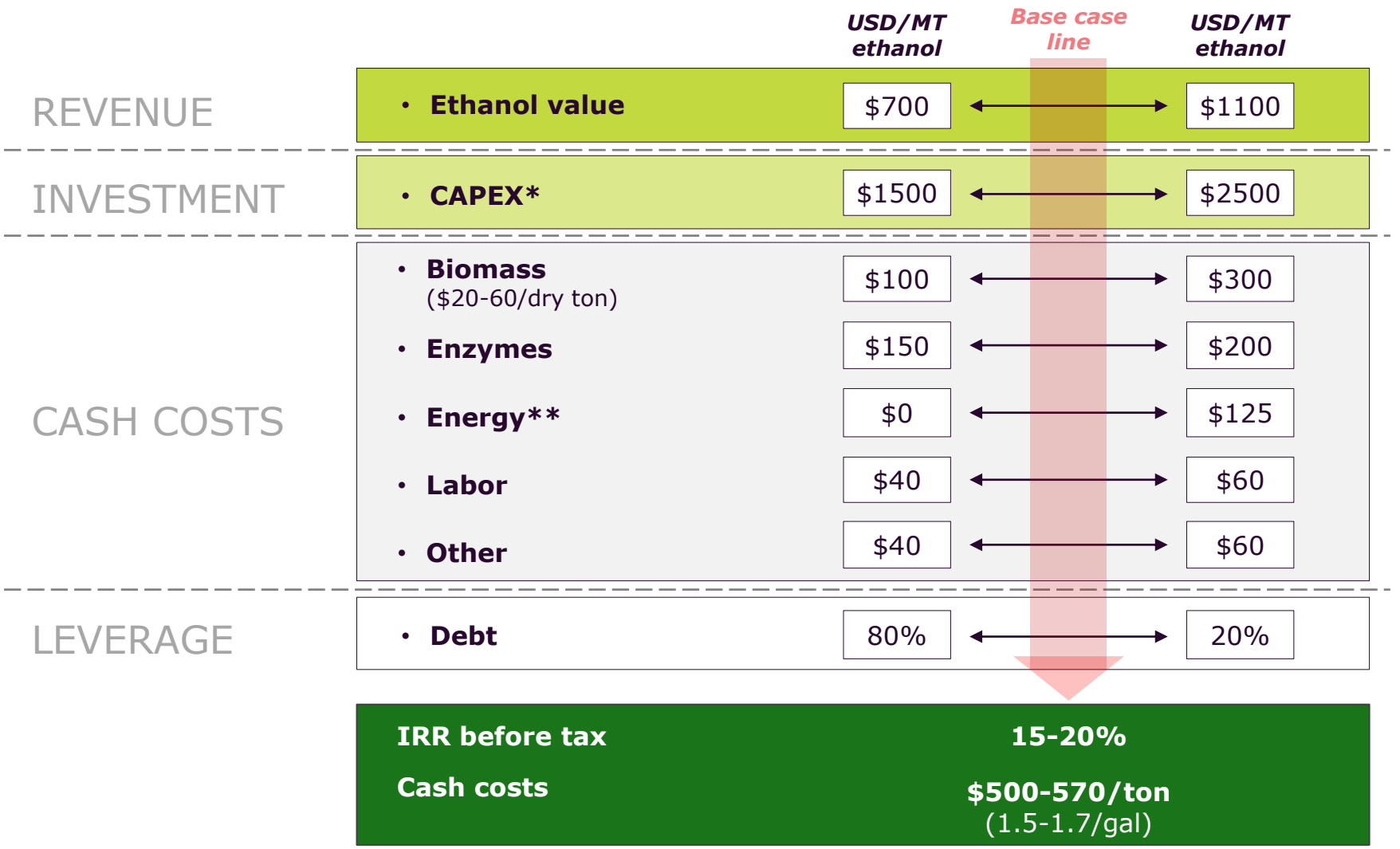


The Key Benefits of the PROESA® Technology :

- Feedstock flexibility
- Fully integrated process design using commercially established equipment
- No chemical addition, optimal trade-off between high sugar extraction and low enzyme dosage
- Industry leadeing capex and opex backed by performance guarantees

Economics of 2G ethanol production



* USD/MT of yearly capacity. >20 years of operating life
** 2G ethanol production is energy self-sufficient

It is no longer technology that needs to be solved

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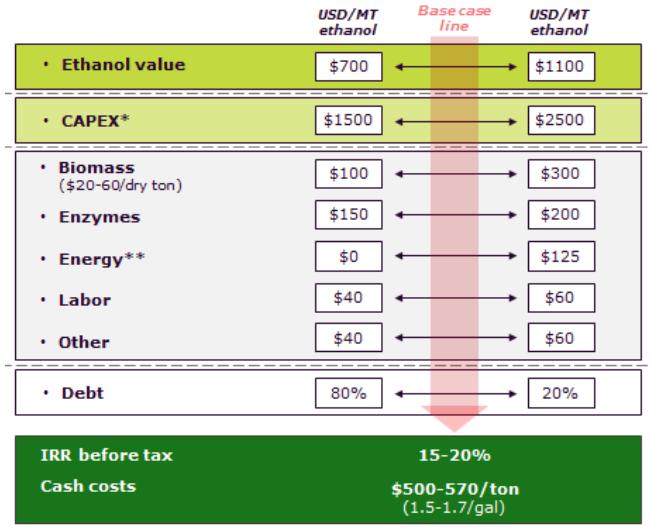
Funding

- Bankability will come as first projects have proven successful
- Until then; equity and government support

Biomass supply

- Biomass cost
- Preferably < $50/dry ton
- Fixed biomass supply 10-15 years



Off-take

- Market price of ethanol
- Uncertainty on subsidy levels and blending mandates (policy risk)
- Export market opportunities

Technology

- Proof of concept at scale
- Conversion guarantees

Crescentino plant is ramping up according to plan; Confirmation of “base case line” expected in 2014

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Status of continuous optimization at Crescentino plant (@ biomass cost: USD 50/tdw)