



Biobased Energy & Materials Initiatives

@RIL

SAHYOG

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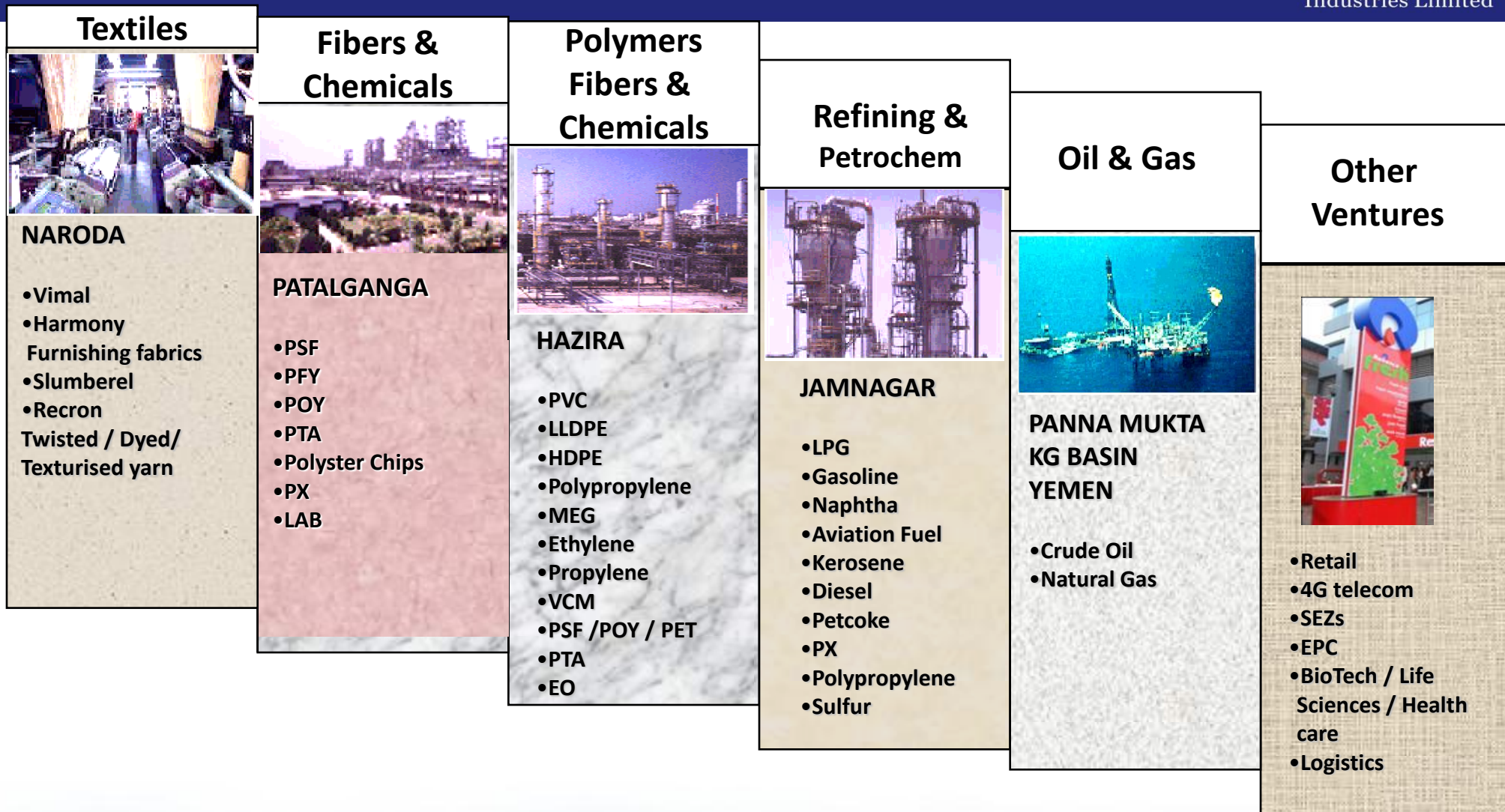
RIL - Brief Introduction

- India's largest private sector enterprise
- Fiscal 2012-2013 financial performance highlights
- Revenue of \$ 68.4 billion and PBDIT of \$ 7.1 billion
- Net Profit- \$ 3.9 billion
- Exports of \$ 44.1 billion
- Rank 107 by Net Revenues in fortune 500 list
- Strong Balance Sheet and liquidity debt free on net basis

Source- RIL annual report-Q4(2012-13)



Backward integration from Textiles to Crude Oil



Backward integration from Textiles to Crude Oil

Global Ranking



Jamnagar is the single largest refinery in the world today



Meeting Energy & Materials Needs of Aspiring Middle Class



Power



Mobility

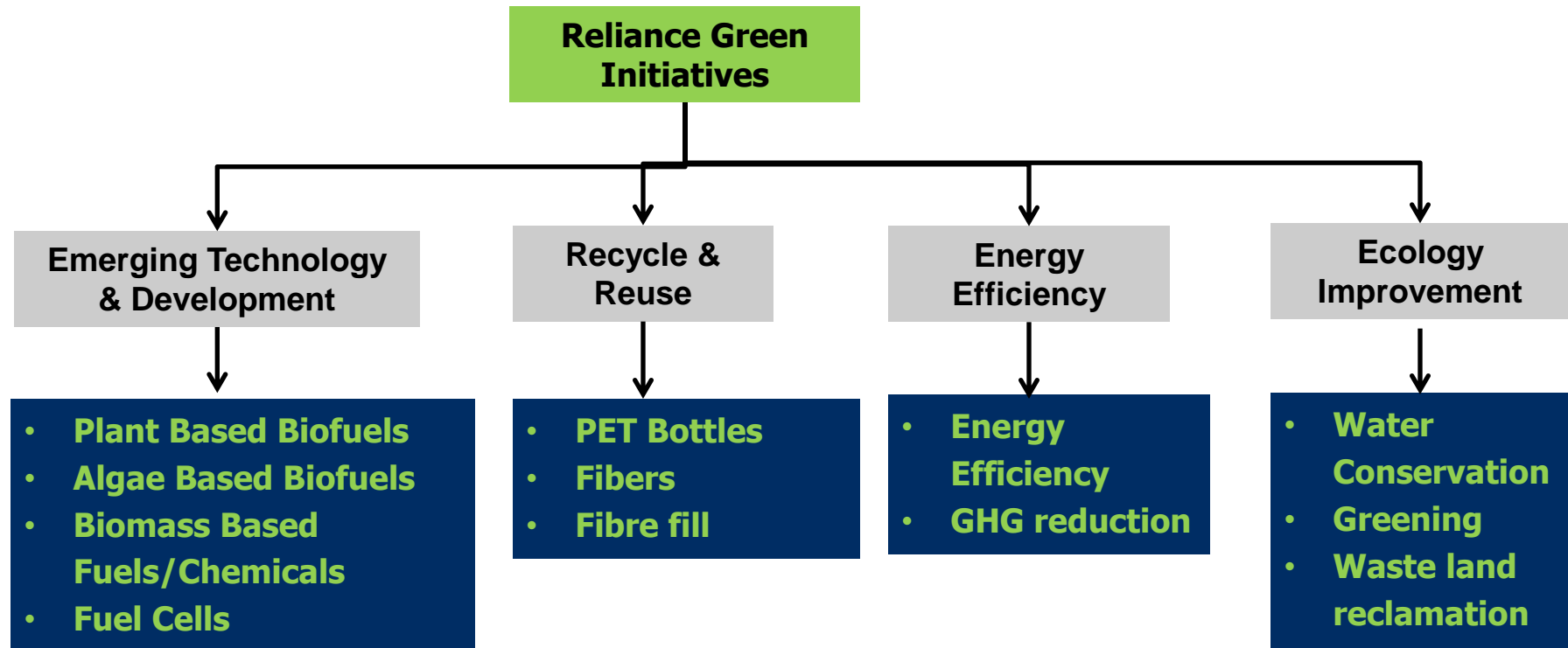


Fuel



Standard
of Living

Green Initiatives Underway at Reliance



❖ *Design Principles*

- ❖ Non-dependance on government subsidies
- ❖ Non-compete with primary food crops (e.g. edible oil)
- ❖ Non-compete with fertile land (irrigated land)
- ❖ No monoculture promotion
- ❖ Sustainability (Economic & Environment) as driver



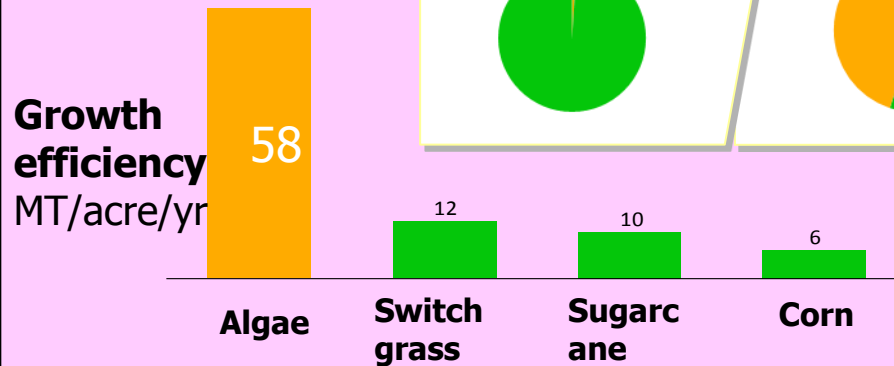
Plant based Biofuels initiative is designed around non edible source and wasted land in delivering a competitive product.

Algae for Energy, Petrochemicals & Wellness Products

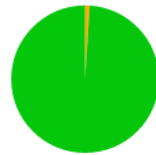
Sun Light + CO₂ + Sea Water → Oil, Ethanol, Nutraceuticals

Algae are most efficient convertor of sunlight

- Aquatic plants
- Terrestrial plants



Plant mass on Earth

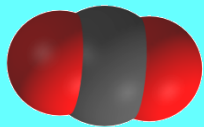


Photosynthesis on Earth

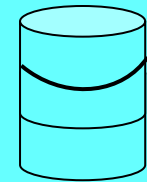
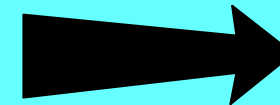
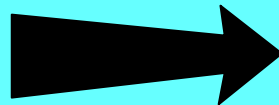


Algae fuel can be grown on marginal land with non-potable, saline and even waste water

Every gallon of algal oil produced consumes 12-15 kg of



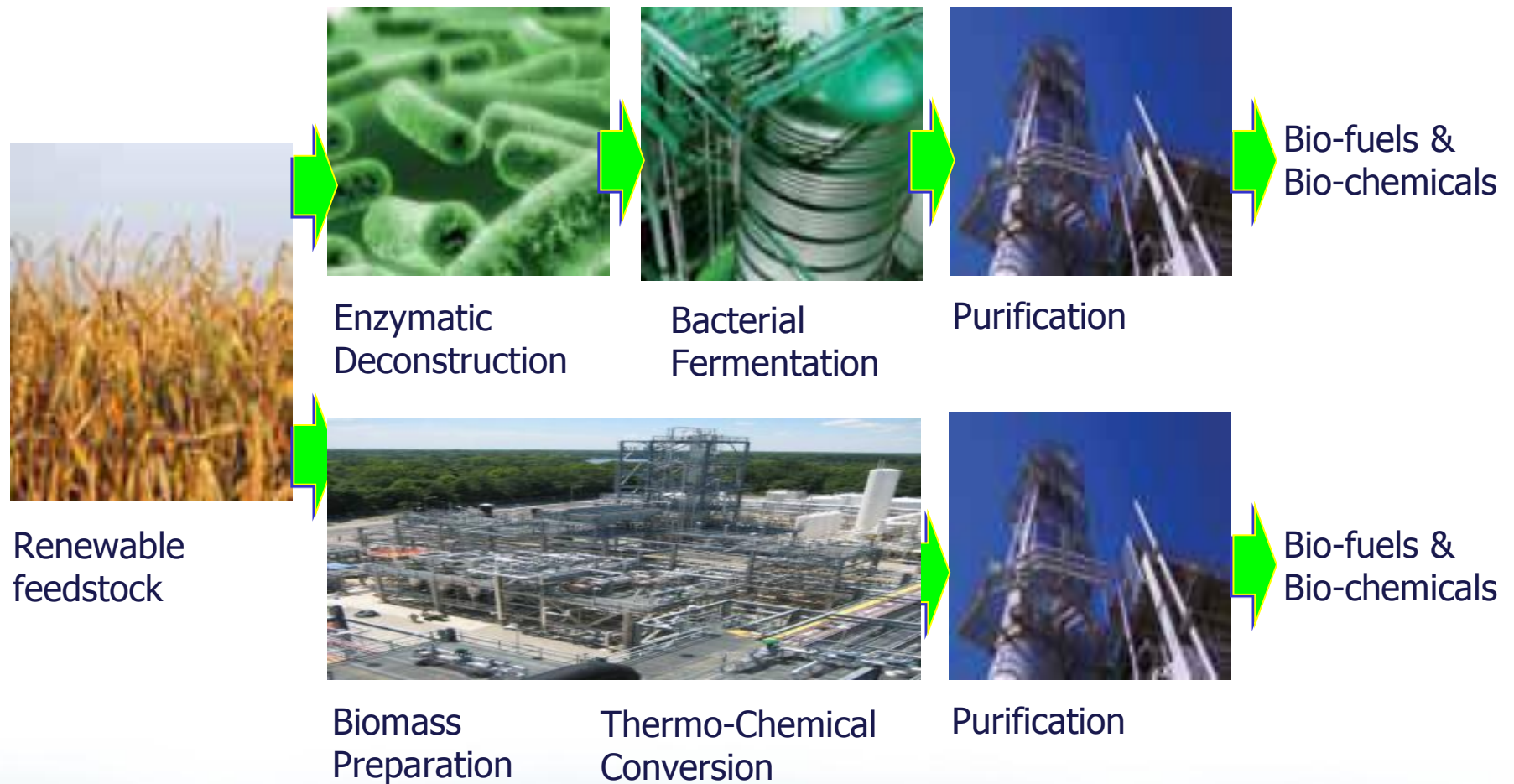
CO₂
~600 kg



Algal oil
1 barrel

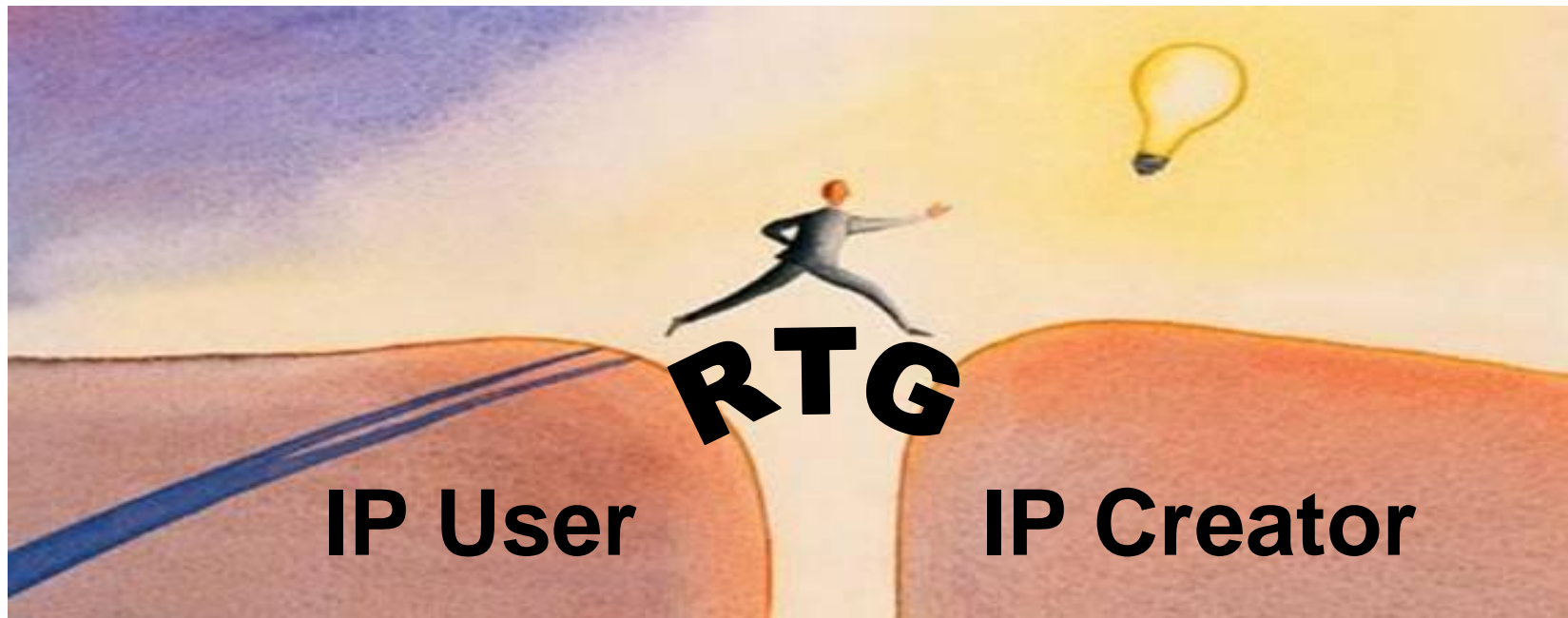
Biomass based Biofuels/Biochemicals

Reducing Industry from its dependency on petroleum-based chemicals



RIL Vision

- ➔ Innovation as a driver of growth
- ➔ From Licensing technology to Developing & Implementing Technology.



Mumbai Research Facility

- World class R&T facility for leading edge Research & Technology development



Large Scale Pilot Plant at Manufacturing Sites

Jamnagar – Refining Pilot plants

Vadodara – Pilot plants for polymers, chemicals & petrochemicals

Patalganga – Polyester

Hazira – Pilot plants for PP catalyst, donors & gas phase process.

Advanced Analytical Capability

Molecular Level Characterization

High Thru-put Experimentation

Micro scale Parallel Experimentation

Advanced Modeling /Optimization Capability

Advanced Computing

Centralized High Thru-put Micro-scale experimentation at Mumbai, Large scale pilot plants at Manufacturing sites

Integrated Solution to Growing Energy Needs

Power



Telecom

Fuel



*To be
an integrated
global player
in the energy market
and deliver
energy solutions
meeting
Indian & global aspirations*



Standard of Living



THANK YOU