# GENERATECAPITAL

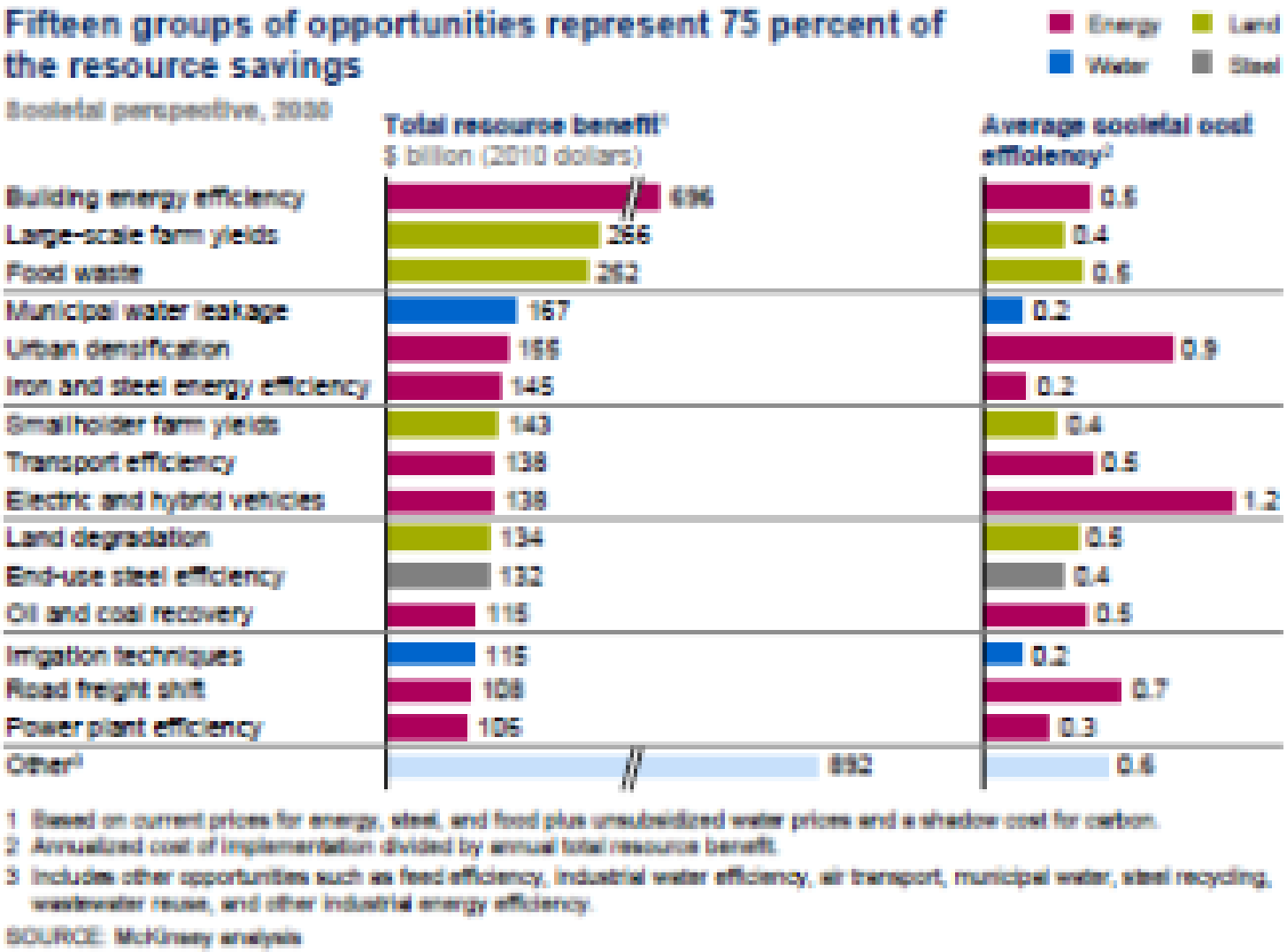
Financing the Resource Revolution

December 2017

# The transition is underway from old to new world infrastructure *(power example below)*

| | **OLD WORLD**<br>*Centralized, Regulated, Big* | **NEW WORLD**<br>*Decentralized, Some unregulated, Small* |
|---|---|---|
| | | |
| **UTILITY** | • $500M+ projects<br>• Government regulated monopolies<br>• Socialized costs<br>• Guaranteed capital recovery rates<br>• 10 years for permitting, construction, commissioning | • $50K+ projects<br>• Small to medium sized players that are a mix of regulated and unregulated<br>• Performance based recovery rates<br>• 1 years for permitting, construction, commissioning |
| **CAPITAL** | • Large scale loan from major banks<br>• Government guaranteed equity return | • Project finance or asset backed lending from specialty finance firms<br>• Increasing interest from traditional capital sources |
| **TECH** | • Commodity output<br>• Established technology | • Commodity output<br>• Established technology, but players have less experience and scale |

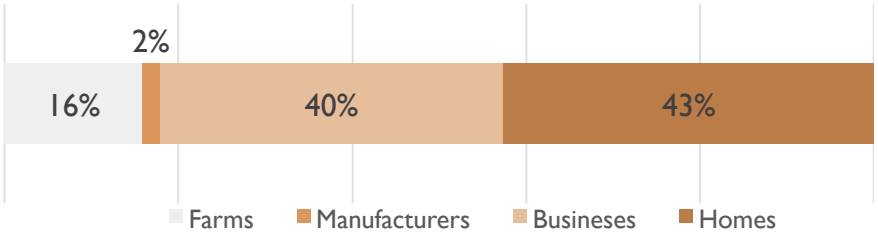
# The first $2 Trillion available without Moonshots



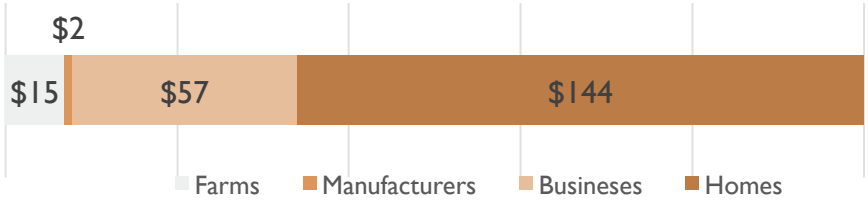
# The US food production system wastes $218 billion a year through supply chain inefficiencies

Today, the United States spends $218 billion a year growing, processing, transporting, and disposing of food that is never eaten. Waste occurs throughout the supply chain, with nearly 85% occurring downstream at consumer-facing businesses and homes. The financial cost of food waste ends up costing consumers the most due to retail pricing versus wholesale pricing for consumer-facing businesses.

**Food Waste By Weight – 63 Million Tons**




**Food Waste By Cost – $218 Billion**

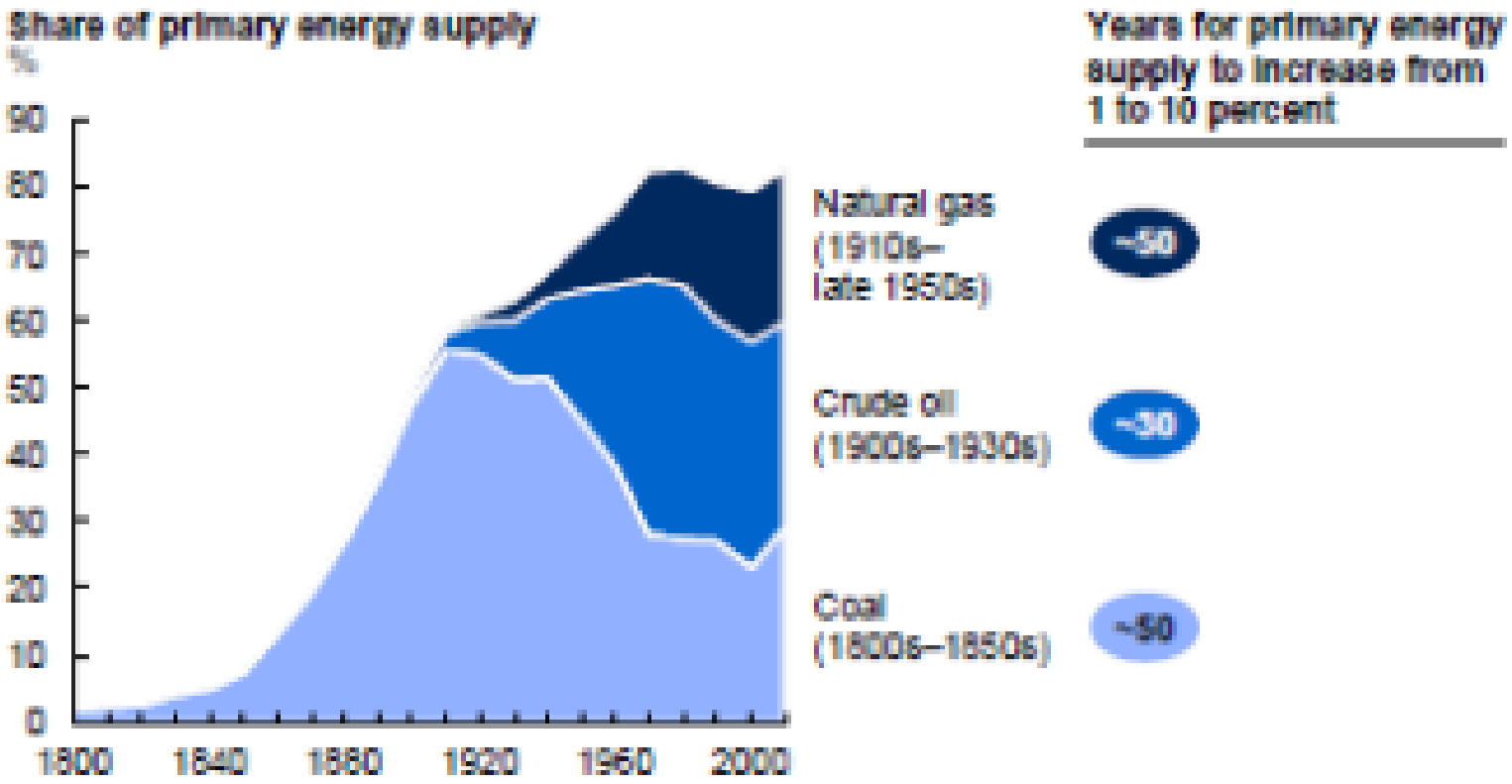



**Key Points of Waste Creation in the System**

- Field
  - Fertilizer/chemicals – Nitrogen runoff, dead zones
  - Seeds – GMO crop residue reducing seed efficiency
  - Water – flood irrigation, lack of data for targeted irrigation, diversion to crops grown in unsustainable regions
  - Field Ag Waste – yield/acre leaves more residue than can be absorbed in field
- Production
  - Farm animal manure, carcass waste
  - Consumer food production waste, including de-packaging
- Post consumer
  - Food waste now a globally recognized issue

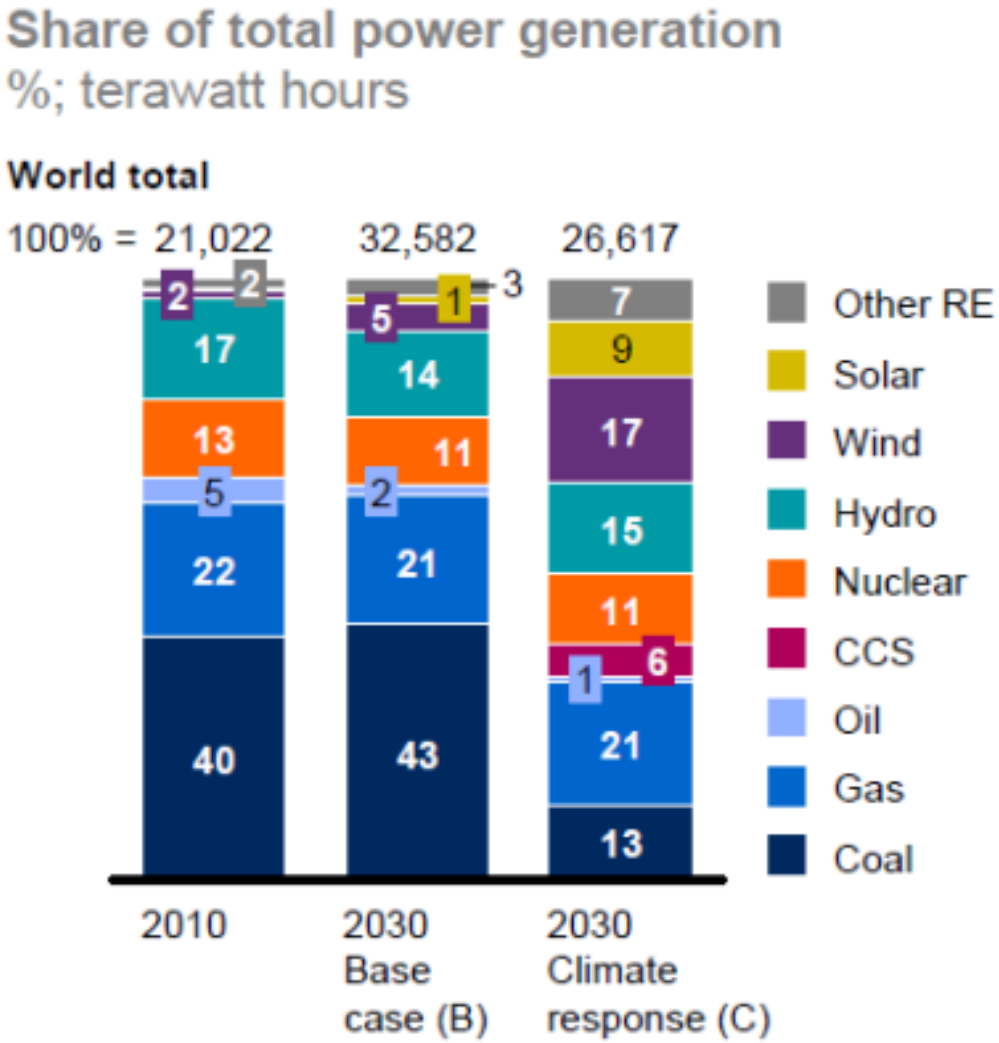
# Wind and Solar will go from 1% of total primary energy to 10% in less than 15 years

**Major energy sources have taken 30 to 50 years to increase from 1 to 10 percent of global energy demand**




SOURCE: Vaclav Smil, *Energy transitions*; McKinsey analysis

# Switch to Renewable Energy is Happening




As of 2017, coal power production has peaked

In fact, the vast majority of new power generation added in the past few years are climate friendly – solar, wind, nuclear, hydro, other RE, etc

Today, the International Energy Agency and others now believe that wind/solar represent the cheapest power available today