

DELIVERING THE COMMITMENT

Energy & Sustainability Partnerships

John Goddard, Manager - Caterpillar Technologies & Solutions Division

DoE DEER Conference, Dearborn, MI

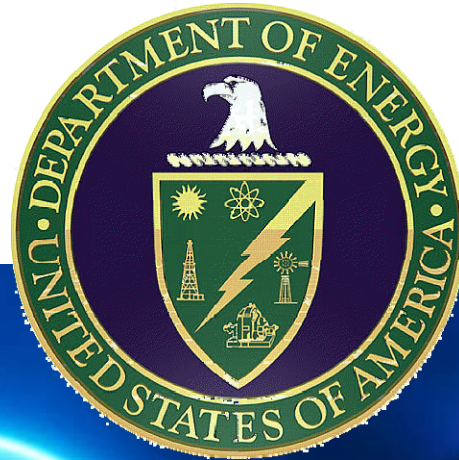
4 August 2008



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Caterpillar and the Department Of Energy

- Caterpillar values its long-standing relationship with the DOE
- Caterpillar thanks the DOE for its partnership and commitment to research on leading edge technology programs
- We look forward to continued cooperation as we move forward



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U.S. DEPARTMENT OF
ENERGY



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A World Leader

Proven Ability to Meet Global Energy Challenges

Tomorrow's World: Caterpillar Machines & Engines have Powered Much of the World's Growth and Prosperity



Is this Tomorrow's World?

Natural Gas Supply in Decline

\$10.00+ a Gallon Petrol

85% of Energy Imported



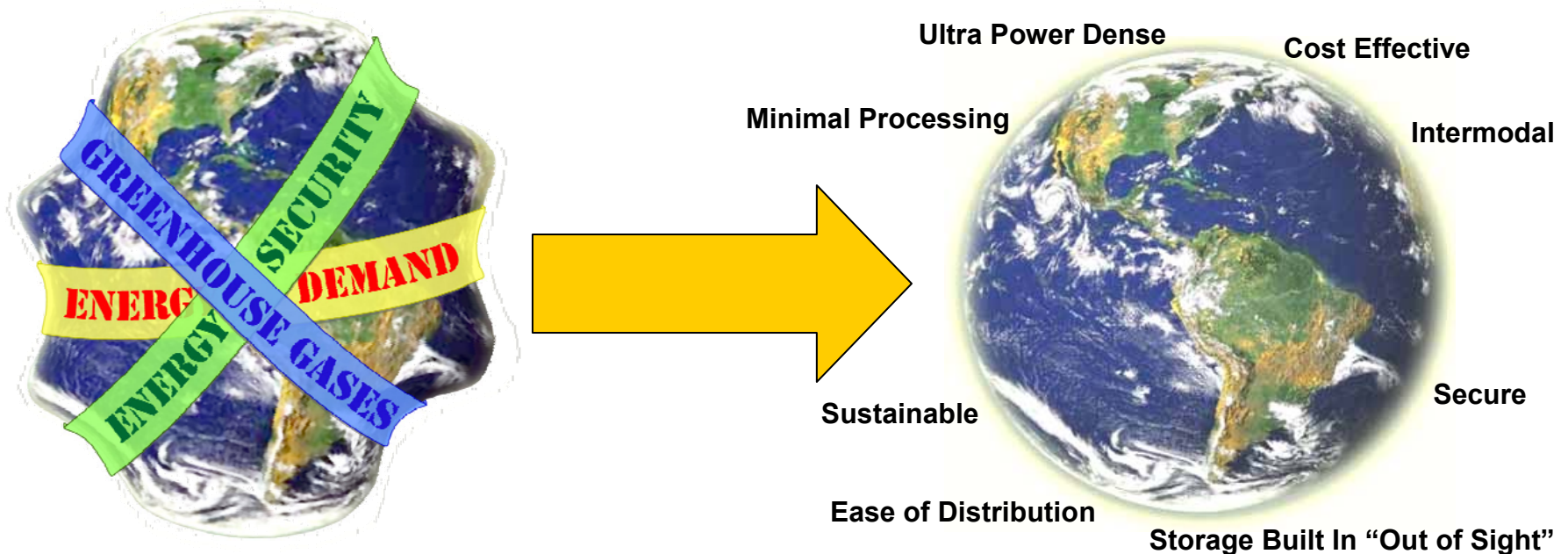
Unsecured Supply
Of Coal/Petrol

Gw of Utility Capacity Pending “Decommission”



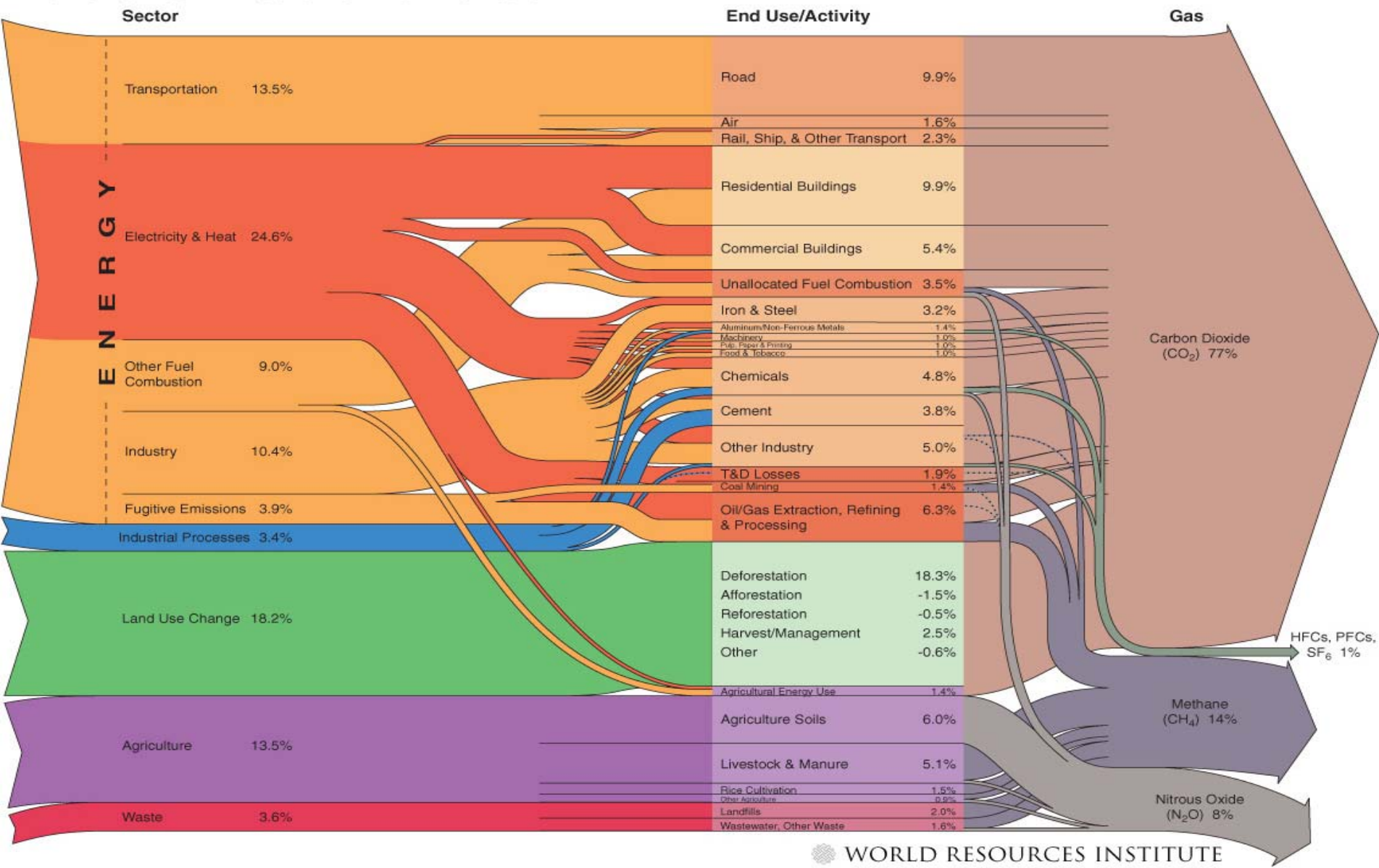
Growth, Prosperity and Our Energy System

A Key Enabler of Growth & Prosperity - A **Great** Energy System



Our Challenge – Making it **Sustainable**

World GHG Emissions Flow Chart

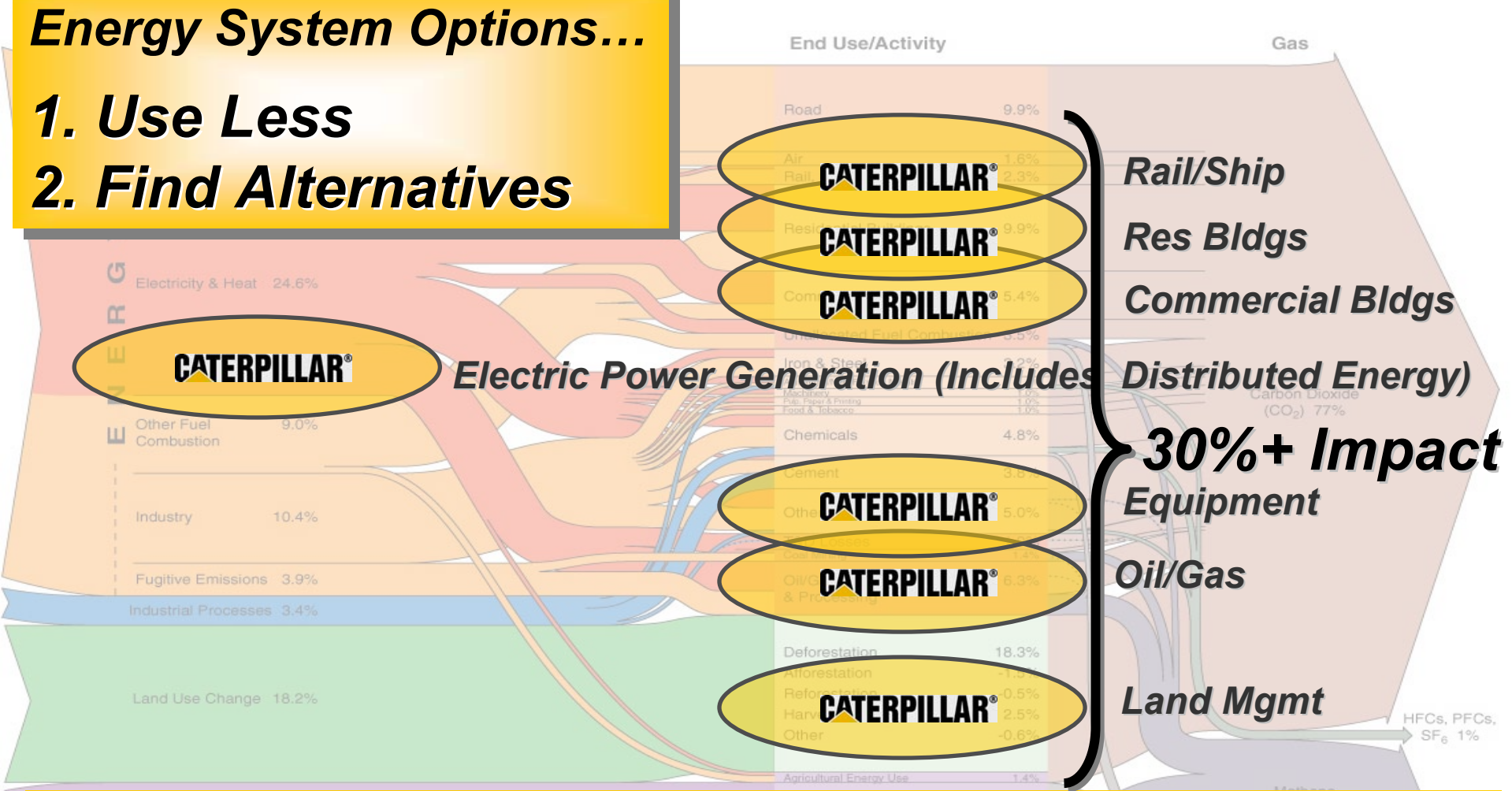


WORLD RESOURCES INSTITUTE



Energy System Options...

1. Use Less
2. Find Alternatives



Road Map Moving Forward...

Enable High Efficiency & Alternatives

1. High Impact Focus = (Efficiency, Utilization, Enabling Infrastructure)
2. Address Multiple "System" Level Areas

Success Stories: Coal Mine Methane Project

BHP Billiton's Appin and Tower Coal Mines - New South Wales, Australia

*System
Efficiency
Is Key Enabler*



*Equivalent to removing
653,372 cars & trucks
from the road*

94 MW of Continuous Electric Power Generation

- 94 Cat G3516 lean-burn, low-emission reciprocating engines
- Over 10 years of operation
- Project has exceeded profit expectations from the sale of electricity



Projected 2014 Fuel Burned in Caterpillar Machine Products

Fuel Burned By One Year's Sales of Caterpillar Units in One Year (with 2008 technology)

2008

\$6 Billion

1.2 Billion Gallons

13 Million Tons CO2

(US\$ of Diesel Fuel)



***“Efficiency is the
Largest Ongoing
Opportunity”***



2014

\$11 Billion

1.7 Billion Gallons

19 Million Tons CO2



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The Energy Technologies Institute

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The UK – Living in Tomorrow’s World?

Natural Gas Supply in Decline

\$10.00+ a Gallon Petrol

80+% of Energy Imported



Unsecured Supply
Of Coal/Petrol

Gw of Utility Capacity Pending “Decommission”



The ETI: Intent - Strengths

- **Desired Intent & Outcomes –**
 - 60% CO2 Reduction in 2050
 - Secure – Sustainable Energy
 - Increased Energy R&D Capacity



- **Strengths –**

International Partnership – Shared R&D

Technology Aligned with Policy (Government to Industry)

Execution Focus Rather Vs. Advisory or Academic

Partner – Partner Relationships



Caterpillar's Significant UK Presence



18 CAT Dealership Locations



- 10,000+ Employees
- 18 Major Facilities
- Presence in UK since 1950's
- A Top-Ten US Manufacturing Investor in UK

- Backhoe Loaders
- Mini-Hydraulic Excavators

Perkins Facilities & Offices

Peterborough – HQ, Manufacturing
Manchester – Parts Distribution
Stafford – Manufacturing

- Engines

FG Wilson Facilities & Offices

Larne, N. Ireland – HQ, Manufacturing

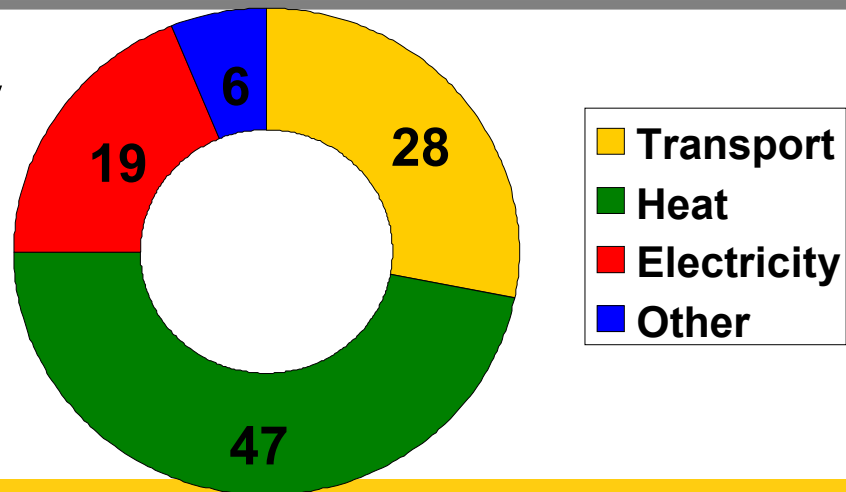
- Generator Sets



The ETI – Mission and Opportunity

“To accelerate the development, demonstration and commercial deployment of a focused portfolio of energy technologies, which will increase energy efficiency, reduce greenhouse gas emissions and help achieve energy and climate change goals.”

UK CO2 Opportunity (in %, Dti White Paper)

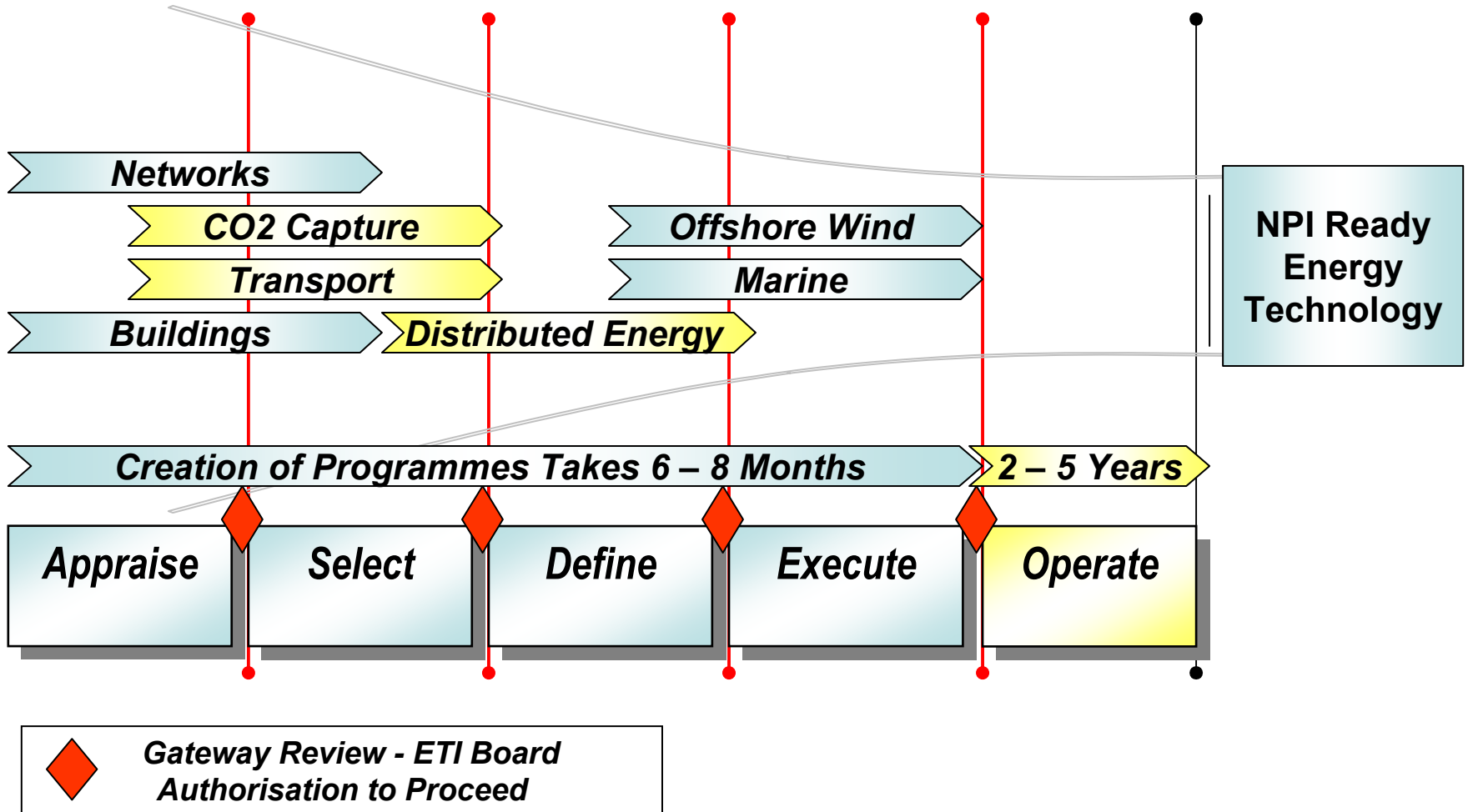


The ETI – Collaborative Themes

- Large Scale Energy Supply Technology
- Energy Security of Supply
- End Use Efficiency / Demand Management
- Transport
- Small Scale Energy Supply Technology
- Support Infrastructures
- Alleviating Energy Poverty



“ETI Call” Programme Process



Goal Alignment - Technology Programmes

Partner Goals

Technology Strategy

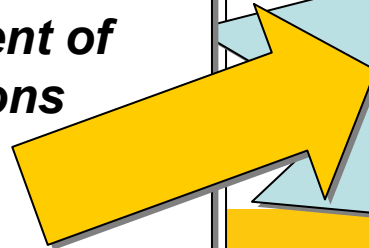
Gen 1 –

- Quick Wins - Efficiencies
- Position for Deployment of Low CO2 Power Solutions

ETI Goals

Technology Strategy

**Gen 2 & 3
Deploy Technologies
for 25% - 60%
CO2 Reduction**



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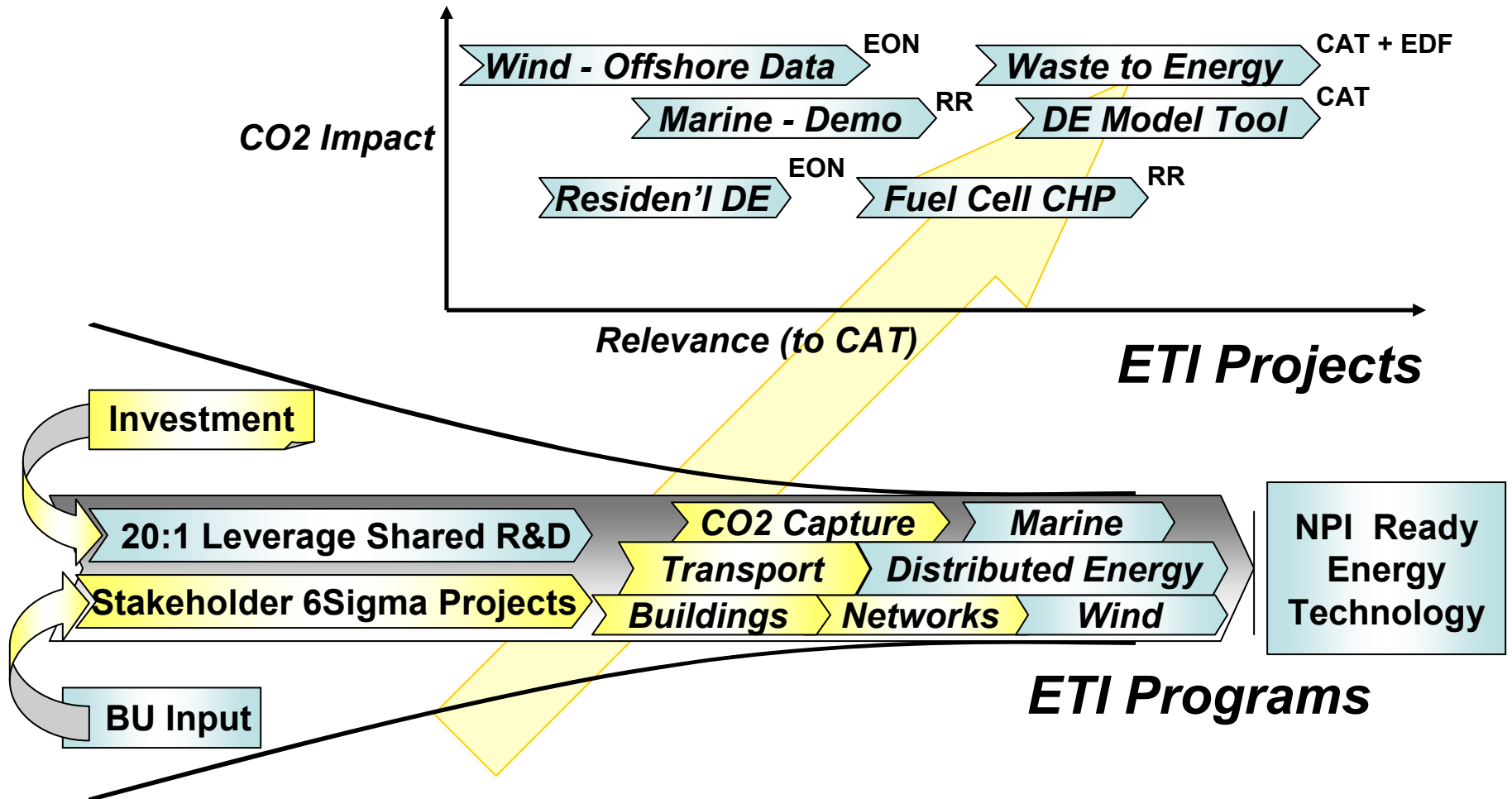
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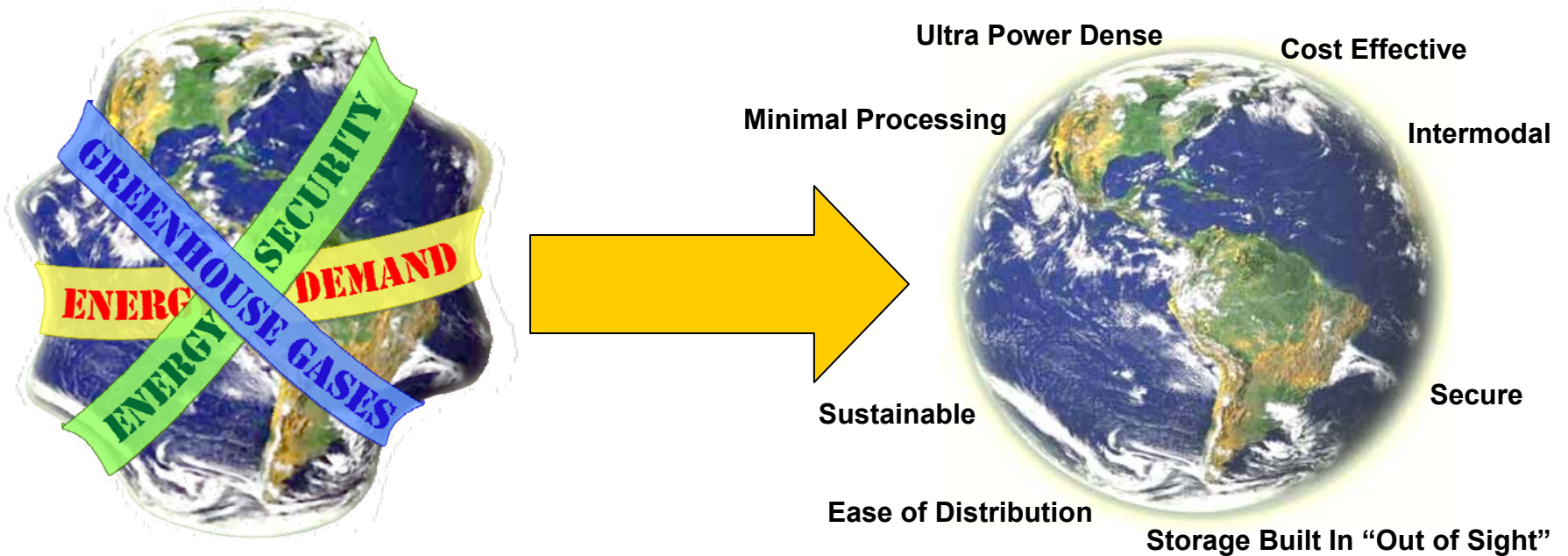


Driving Stakeholder Technology Deployment



Cooperative Research

Building A Sustainable Energy System Together



The Key Enabler of Growth & Prosperity



DELIVERING THE COMMITMENT

Making Progress Possible

Caterpillar Leadership in Sustainable Development

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