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Global Climate Change and Clean Energy

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Energy and development fundamentals

- Energy is a cross-cutting input that has significant development impacts: energy powers economic growth.
- More than 1.6 billion people lack access to affordable and reliable energy services worldwide: expanding access empowers people.
- Options exist today to meet growing energy needs sustainably while encouraging more commercial service providers to enter the market.
- USAID has found that energy sector reform is essential to sustainable clean energy systems.
- Improved governance essential to enabling environment for private sector investment in clean energy services.



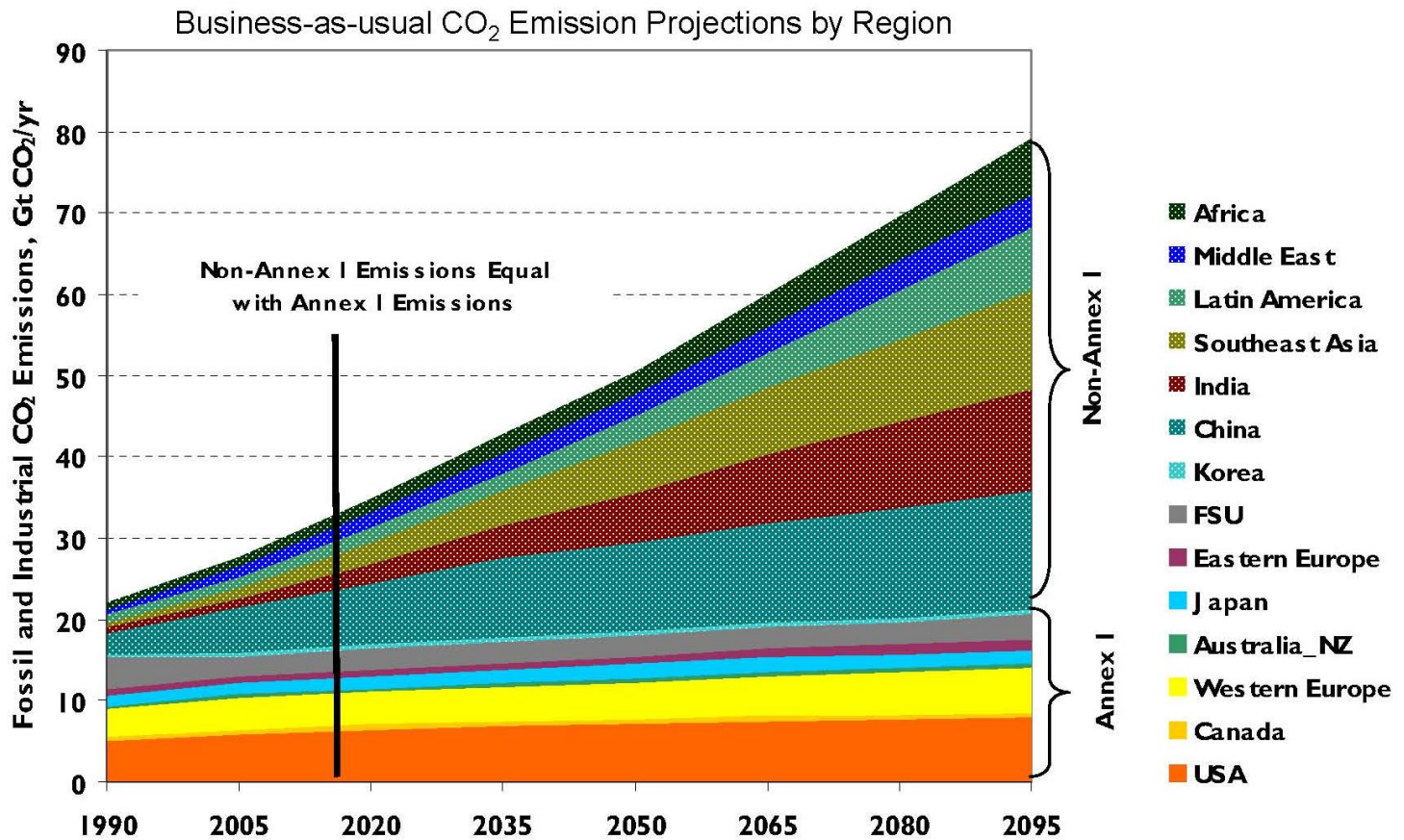
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The energy, development, and climate challenge

- 97 percent of emissions growth between now and 2030 projected to come from developing countries, 50 percent from China alone
- Long lived investments – technology and emissions lock-in
- Barriers to investment in clean energy systems in developing countries – subsidies, import tariffs, nationalization threat, 'lack of access to credit, lack of access to grid
- Perceived risks of new technologies: reliability, up front costs, base load demand
- National impediments to regionalization
- Remote rural populations present cost effective opportunity for solar and renewables
- Existing technologies can make significant gains now; don't need the highest tech



Transitions in emissions by region

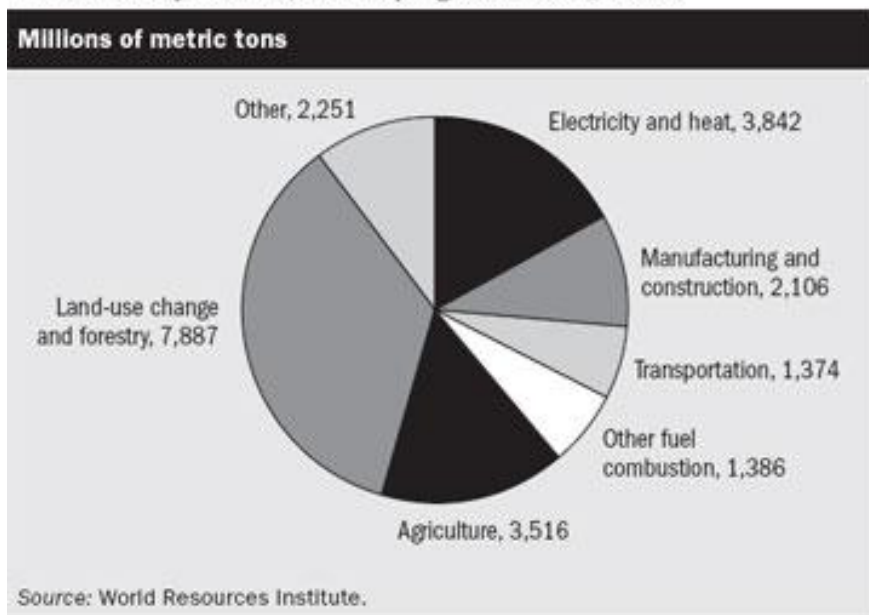


Data derived from *Global Energy Technology Strategy, Addressing Climate Change: Phase 2 Findings from an International Public-Private Sponsored Research Program*, Battelle Memorial Institute, 2007.

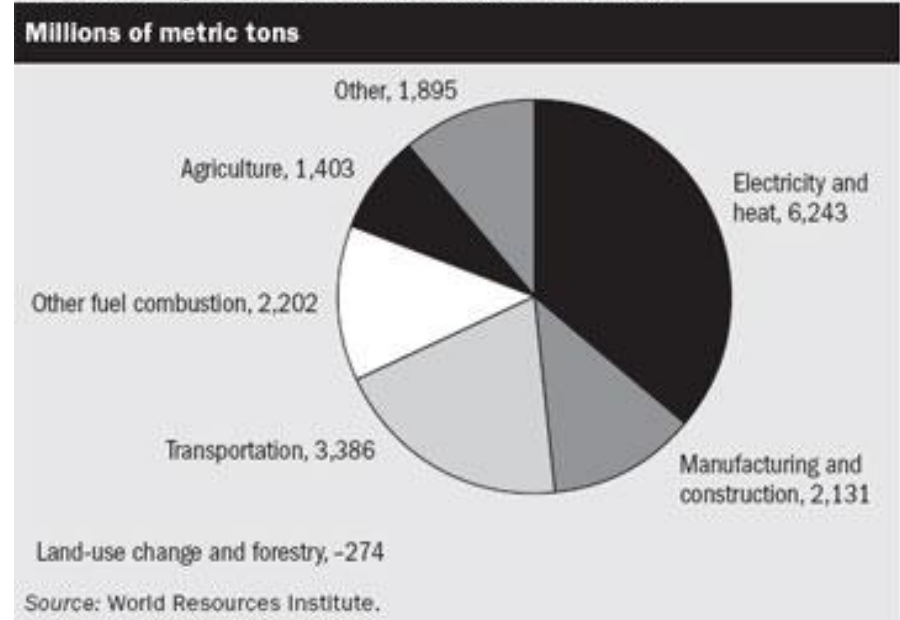


Emissions by source – transitioning to industrial patterns

Emissions by source, developing countries, 2000



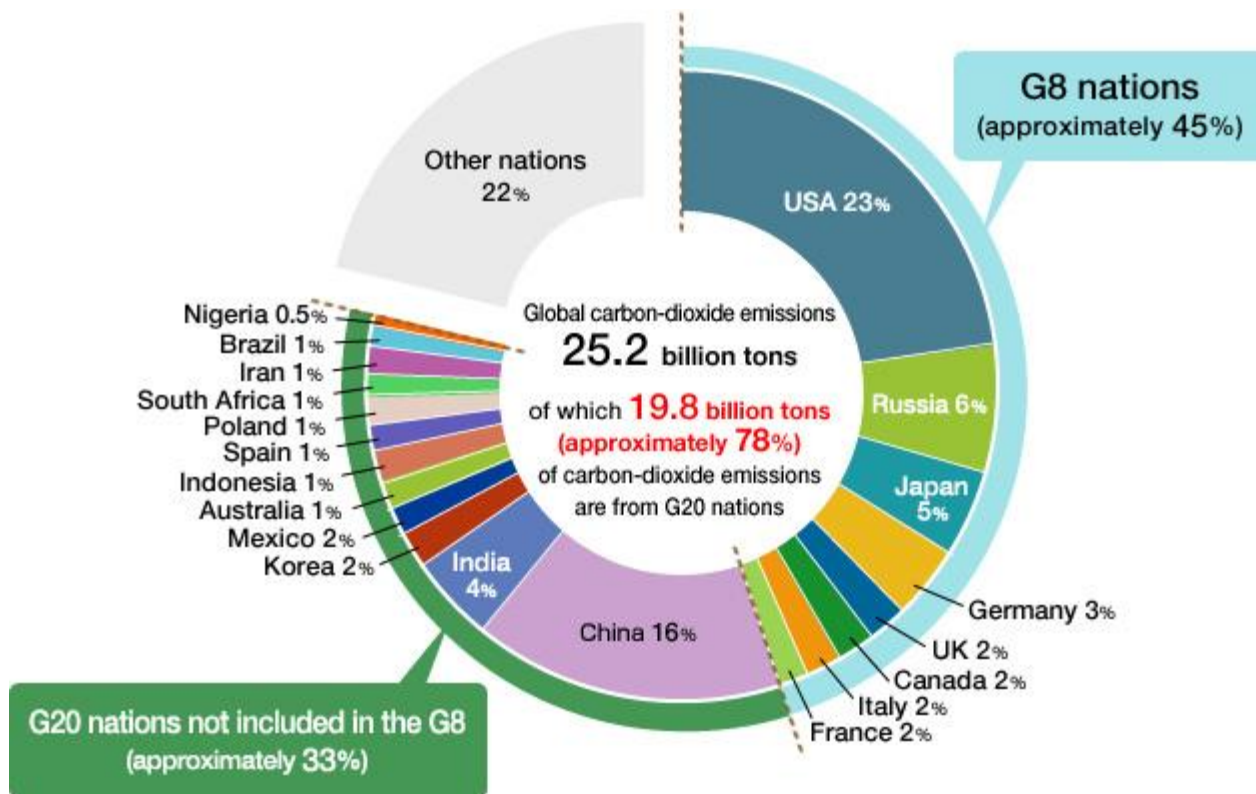
Emissions by source, industrial countries, 2000





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Top 20 countries account for ~80% of global emissions (so other 160 account for ~20%)





Clean Energy Country Selection Criteria

Objective

Reduce greenhouse gas emissions through energy efficiency, low-carbon energy, clean transport, and energy sector reforms.

Criteria

- **Emission Reduction Potential**
 - Energy or carbon intensive economies
 - Renewable energy potential and commitment to implementing clean energy
- **Enabling Environment**
 - Resources available to fund clean energy programs
 - Progress in implementing reforms, preconditions
 - Ability to be leader in large-scale deployment of clean energy
 - Low Emission Development Strategy (LEDS) country

How to Measure?

- Emissions levels, energy intensity
- Renewable energy penetration, energy supply mix
- Governance indicators, history of promoting efficiency

Programming Guidance: General characteristics

Focused/Direct GCC Funding:

- Must have a **GCC Objective**
 - Explicitly seeks climate change-related outcomes
- Must have a **GCC Indicator**
 - Monitor impact using one or more GCC indicators, at least one of which must be a USAID standard GCC Indicator. Programs with field level activities and impacts must report **estimated CO2 emissions reductions and sequestration**.
- Focused (direct) funding **CANNOT be attributed to any other earmark**
 - *“not less than \$10,000,000 shall be made available for microfinance renewable energy programs, including solar energy programs”*



Programming Guidance

Objective

Reduce greenhouse gas emissions through energy efficiency, low-carbon energy, clean transport, carbon accounting and energy sector reforms.

Contribute to one of more of the following:

Key Traits

- Limiting anthropogenic emissions of GHGs including gases regulated by the Montreal Protocol
- Integrating climate change concerns with the recipient countries' development objectives
- Assisting developing countries' efforts to meet their obligations under the UNFCCC

Examples

- LEDS
- End-use energy efficiency program
- Program to support renewable energy generation through policy, regulatory, legal, tariff reforms
- Support transmission network specifically for RE connections



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Clean Energy (CE) examples

- USAID will identify and work with countries on preparations for Low Emission Development Strategies (LEDS)
- Programs to support renewable energy generation through a combination of policy, regulatory, legal, tariff reforms and/or direct transaction assistance
- Programs that support the development of enabling environment (policies, laws, regulations and institutions) which directly support sustainable CE programs
- Efforts to use the GHG Protocol to establish carbon accounting systems, and national registries for greenhouse gas emissions
- Programs that enhance and facilitate financing for end-use energy efficiency and/or renewable energy technologies
- Activities that support carbon market readiness



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Clean Energy examples (continued)

- End-use energy efficiency program
- A program that supports regional power pool development to enable renewable electricity generation to be sold to markets that do not possess their own renewable energy resources
- A program to support development of agricultural bio-digesters, improved cookstoves, and/or electricity generation from landfill methane
- A program that enhances and facilitates financing for end-use energy efficiency and/or renewable energy technologies
- A program to disseminate solar water heaters



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Clean Energy examples (continued)

- A program to support renewable energy generation through a combination of policy, regulatory, legal, tariff reforms and/or direct transaction assistance
- A program focused on construction of a transmission network and development of operating capacity for the transport of hydropower from a neighboring country
- Programs that support the development of the enabling environment (policies, laws, regulations and institutions) which directly support sustainable clean energy programs and change emissions trajectories
- A program that explicitly includes an objective of mitigating GHG emissions through supporting the development of policies, regulations, and an enabling environment to change current practices of gas flaring through the creation of domestic markets and productive uses for the previously flared gas



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Examples of non-eligible Clean Energy activities

- An energy program focused on improving the enabling environment for private sector investment in **coal, natural gas, or diesel fired power plants.**
- An energy program that promotes supply-side energy efficiency through re-powering of existing, **high GHG-emitting fossil fuel power plants, retrofitting** these plants with more efficient turbines, and **installing more energy efficient transformers** in a power distribution grid with a large fossil generation component.
- A program to replace unregulated and highly polluting, small diesel generators with a few centrally located, **natural gas** generating facilities.



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Key USG players

- USAID – Clean energy programs
- DOS – Major Economies Forum
- Treasury – Multilateral Funds
- DOE – International EE and RE programs and Research & Development
- USEPA – GMI, Inventory and Analytical Support
- EXIM/OPIC and TDA – US exports support
- Commerce -- US exports support