

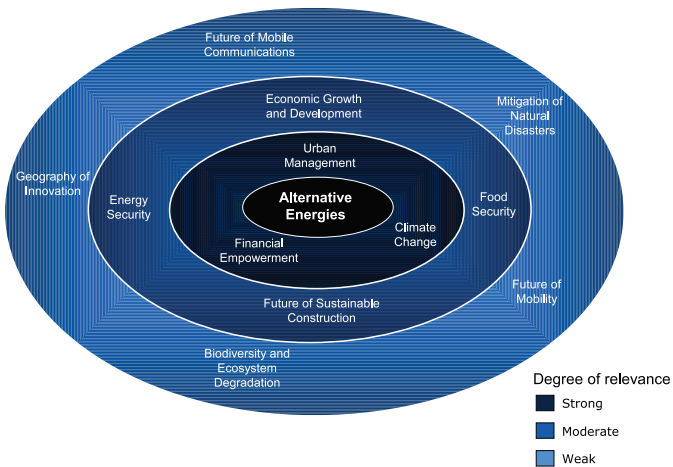
# Environment & Natural Resources

## Alternative Energies

### A. Description of the issue

The world needs more energy to enable economic development, but conventional fuels are a finite resource that contribute to climate change and create other problems such as pollution and increasingly vulnerable supply lines.

New and renewable sources of energy are beginning to enter the mainstream of national and international energy-policy formulation. Although the share of energy derived from alternative energies is gradually increasing, it remains far below its economic potential. About 93% of global energy consumption is from non-renewable sources like oil, natural gas, coal and nuclear fuel.<sup>1</sup> Despite current technological advancements, breakthroughs of truly long-lasting value will only occur if governments and the private sector commit the necessary intellectual and financial capital and create a regulatory framework that encourages investment in alternative energies. Hence, emphasis will be placed on enabling existing renewable energies to assume a greater portion of the energy pie.



# Alternative Energies

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## B. Dimensions

### Main Drivers

- **Energy security:** Policies to promote the use of national energy sources, including alternative energies, could be part of the strategies used to reduce dependence on imported fossil fuels and bring diversity and security of supply to the world's energy infrastructure. New business opportunities will be created as a result.
- **Climate change:** Can human-induced greenhouse gas emissions be reduced without threatening economic growth? International regulations to protect the climate worldwide could help create important opportunities for carbon-free energy providers.
- **Localization trend:** The “shifting power equation”, as measured by the increasing visibility and influence of local actors, resource nationalism pertaining to natural resources, increasing transportation costs and recent food security concerns have all placed new emphasis on local resources and value creation in regard to energy supply.

### Enablers

- **Technological innovation:** Developing new technology in renewable energy fields such as biofuels, geothermal energy, hydropower, solar energy, waste, wave and ocean energy and wind energy is key to finding novel ways to extract energy as effectively as possible and convert it into more useful forms.
- **Differentiated approaches:** While developed countries will focus mostly on how to promote policies that will create incentives for the alternative energy sector and implement regulations to curb externalities linked to energy usage, the developing world will focus more on finding the right synergy of business and financial models that will support a positive expansion in this sector, beneficial to its development.
- **Cross-cutting game changers:** Three elements could play a very important role in encouraging the use of alternative energies. Smartgrids (“the Internet of the electricity sector”) that connect energy supply with demand, an increased focus on new energy efficiency and conservation approaches, and the development of new storage technologies will potentially revolutionize the current notion of electricity supply and energy security.

<sup>1</sup> AIE 2007