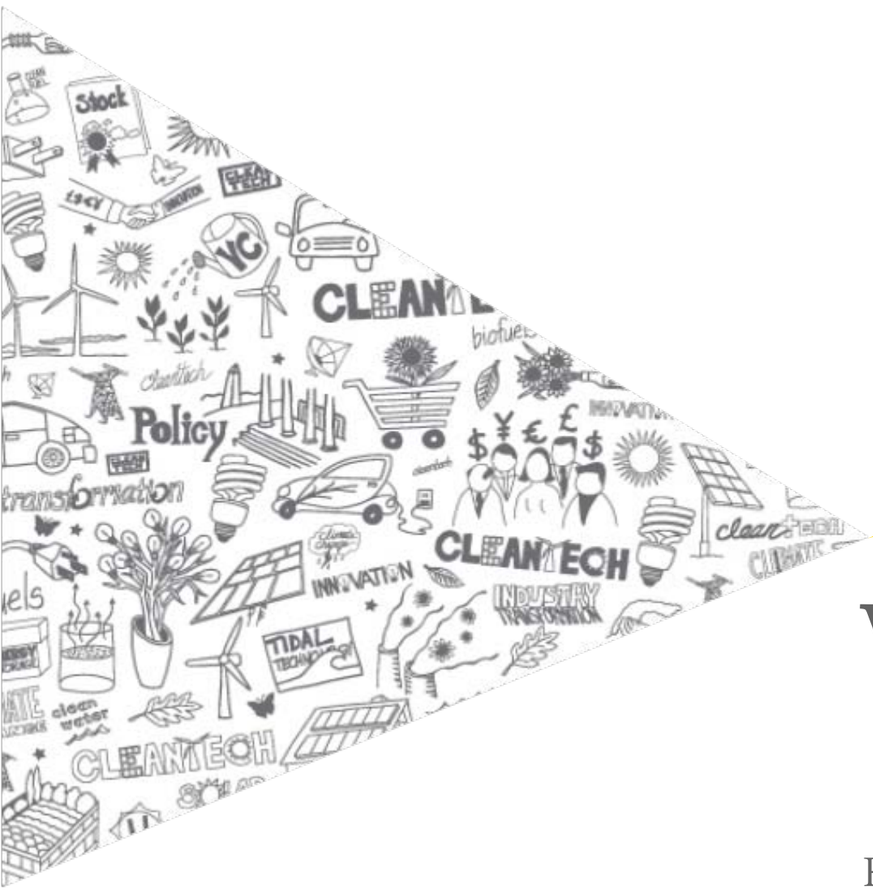


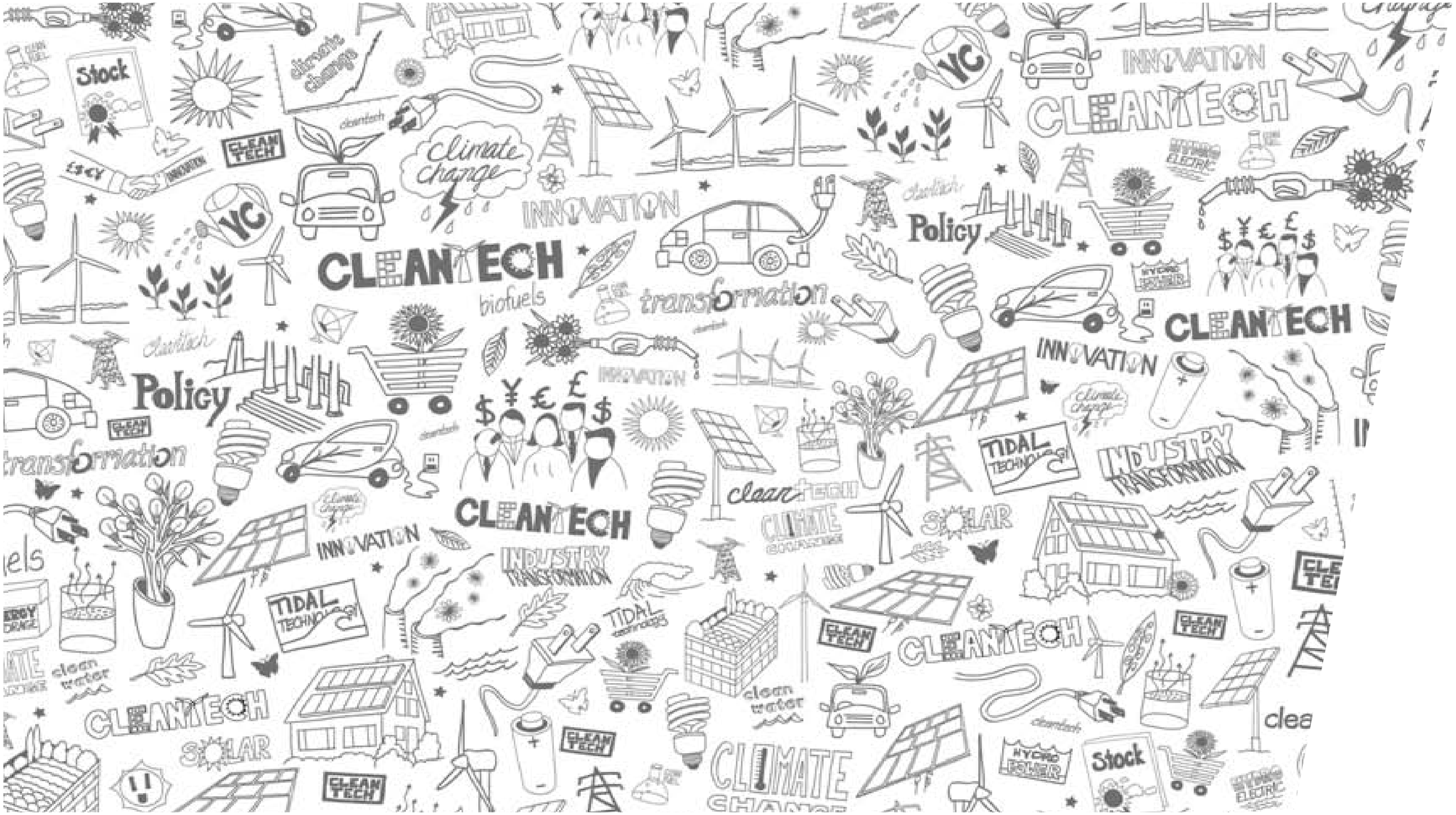
Vulnerabilities – Electric Power

Finance/Project Development Prospective

24 July 2012

ERNST & YOUNG
Quality In Everything We Do

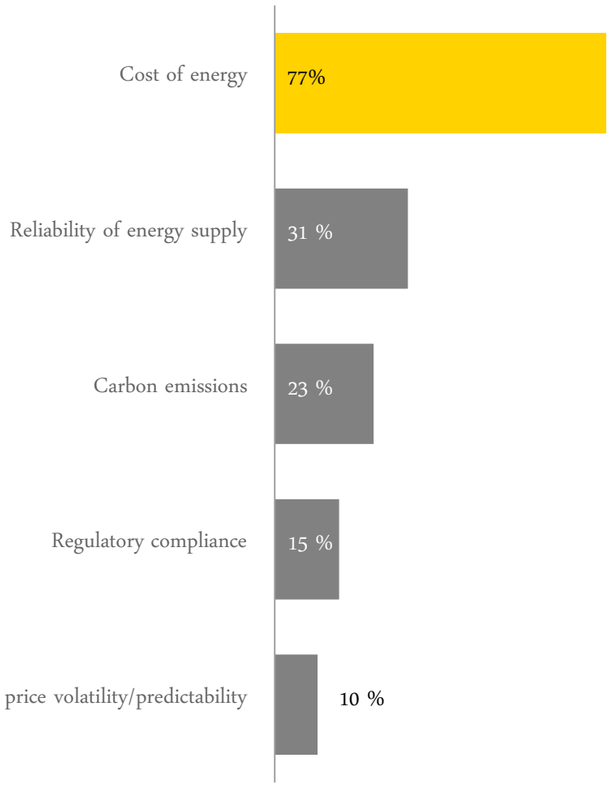
Ernst & Young global corporate energy mix survey



Ernst & Young global corporate energy mix survey

- Ernst & Young commissioned a global survey of 100 energy-intensive companies to identify the key strategic energy issues facing C-suite executives. These large global corporations, each with more than US$1 billion in revenues, focused on energy efficiency, increased usage of renewable energy and generation. Cost is a key theme driving corporate energy mix strategy decisions as 73% of respondents foresee their already substantial energy costs rising over the next five years.
- Energy mix is now a C-suite decision: our survey concluded that energy mix has become a strategic issue at the C-suite level of billion-dollar corporations, especially given that a significant — and rising — share of operating costs is being spent on energy.
- While reducing energy costs through energy efficiency measures is often the foremost objective of a company's energy strategy, a number of other goals are also driving strategy, such as energy security, carbon reduction and price stability. Regulatory compliance together with reputation and brand aspects also play a part.
- Company self-generation of energy and integration of renewables into the energy supply are being implemented at increasing rates to meet these ends and are set to accelerate further over the next five years.
- We found that the main barriers to self-generation and the use of renewables are related to risk and financial returns, suggesting that adoption could come even faster with financing innovations and the increasing cost-competitiveness of renewables.

Most important drivers of corporate energy mix



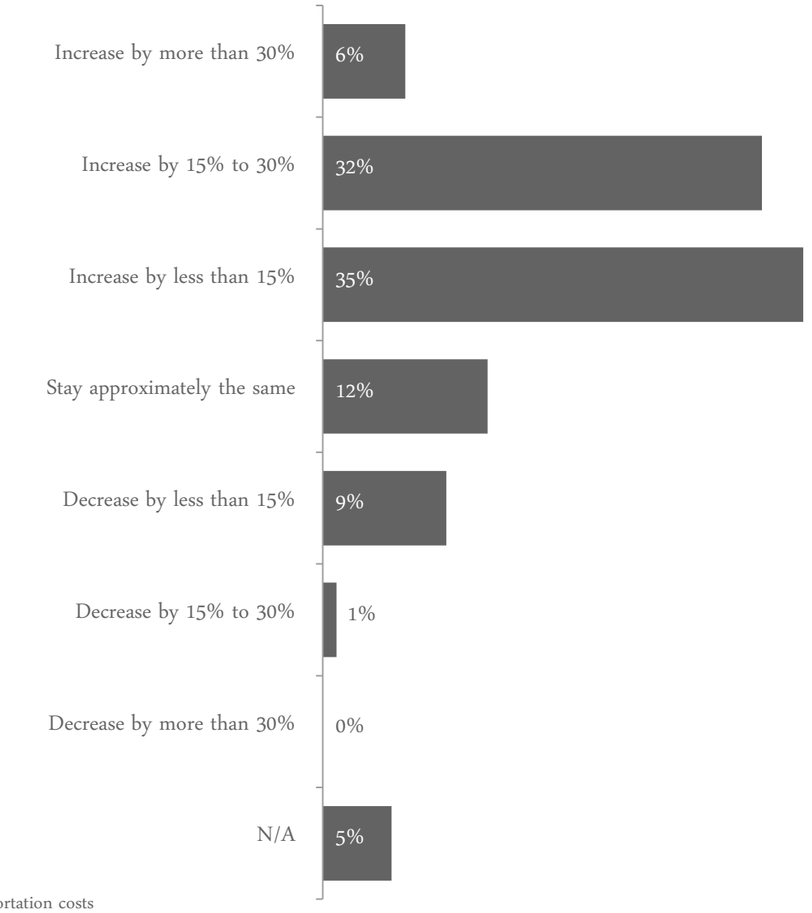
Source: EY Corporate Energy Mix Survey 2012

Corporate energy expenditure and outlook

Corporate consumers expect significant increase in energy costs

- Half the population of companies surveyed spend 5% or more of their operating costs on energy.
- 40% of companies spend US$50 million or more on energy annually.
- 73% of respondents expect their energy costs to rise over the next five years, while 38% anticipate cost increases of more than 15%.
- Cost is the primary determinant of energy sources used, and this is likely to remain unchanged over the next five years.
- Lighting and heating, ventilation, and air-conditioning (HVAC) are the biggest energy requirements for business operations.
- Financing and capital issues related to energy mix projects were identified as the key challenge to implementing energy strategy.
- Energy and formulation of the corporate energy mix strategy are now C-suite issues, as most respondents indicated that decisions around corporate energy mix strategies were made by senior-most executives including CEOs, CFOs and COOs.

Anticipated increase in energy costs over the next five years



*Note: Includes transportation costs

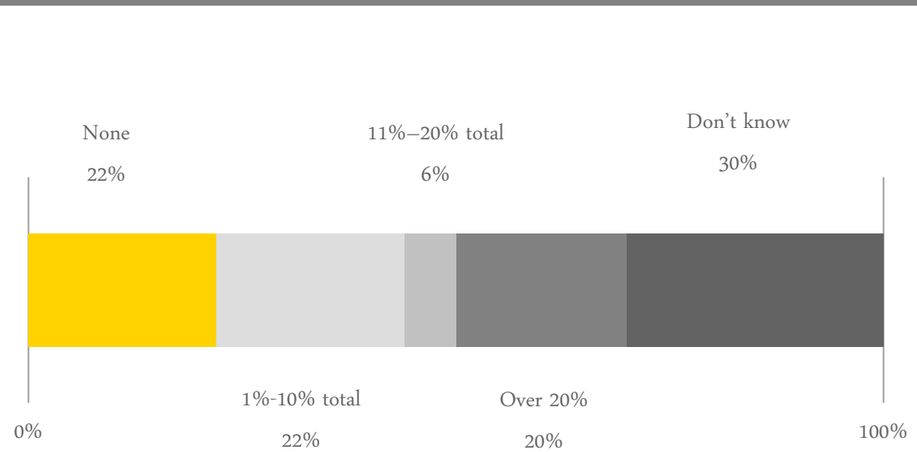
Source: EY Corporate Energy Mix Survey 2012

Purchased energy used by corporate consumers

- 22% of respondents derived between 1% and 10% of purchased (Scope 2) energy from renewable sources.
- Wind energy is the most commonly procured source of purchased renewable energy.
- 55% said they plan to increase or significantly increase the use of purchased renewable electricity over the next five years.

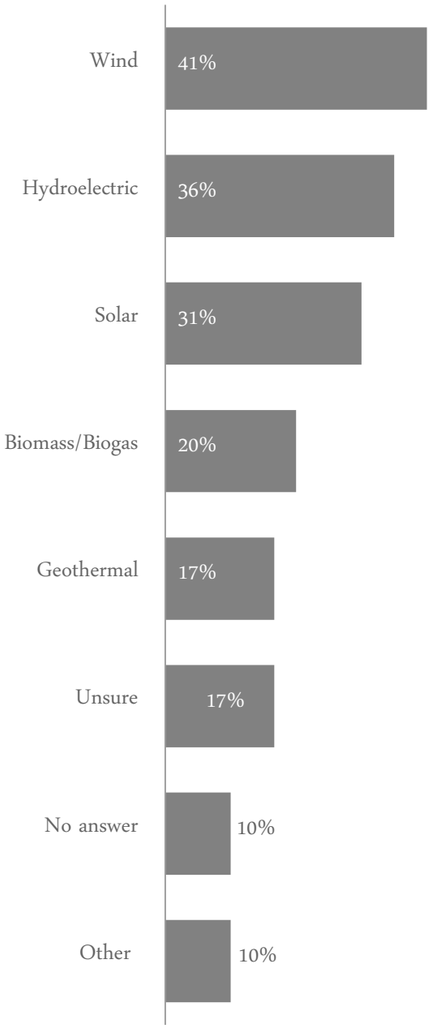
*Note: Scope 2 energy is purchased energy generated offsite

Renewables as a percentage of purchased electricity



Source: EY Corporate Energy Mix Survey 2012

What types of renewably generated electricity do you purchase?

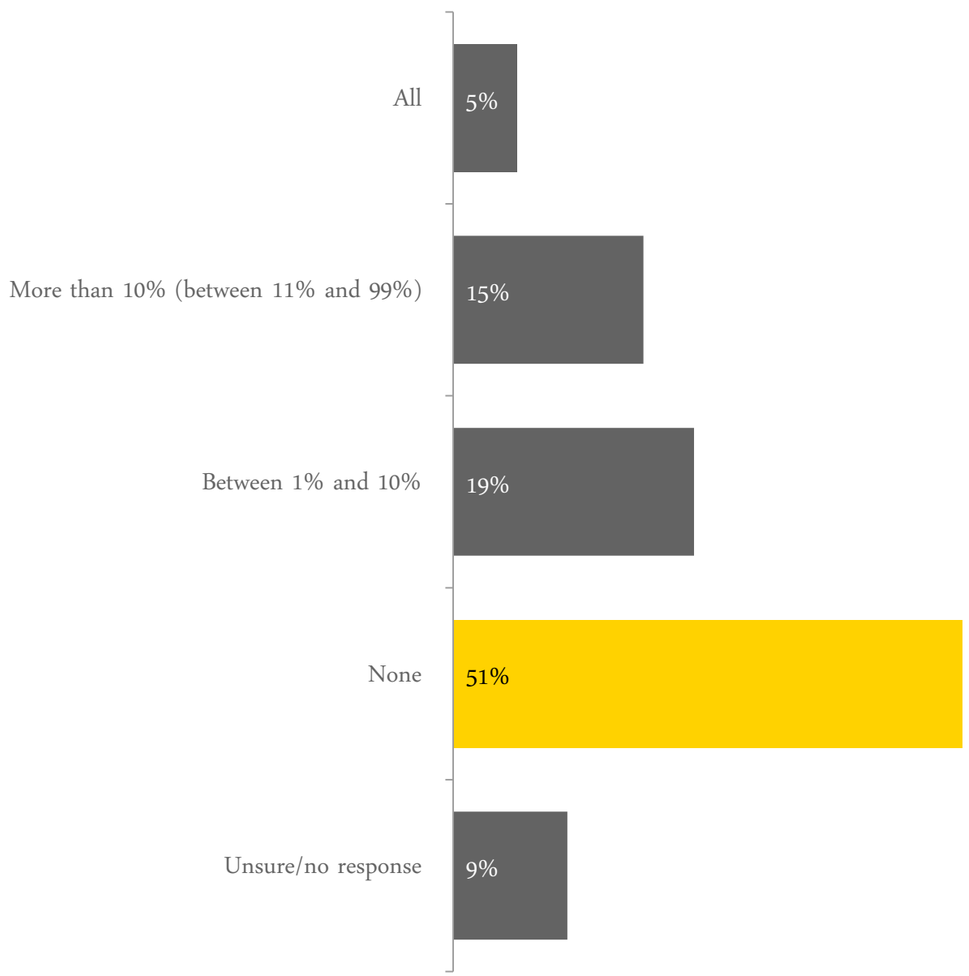


Source: EY Corporate Energy Mix Survey 2012

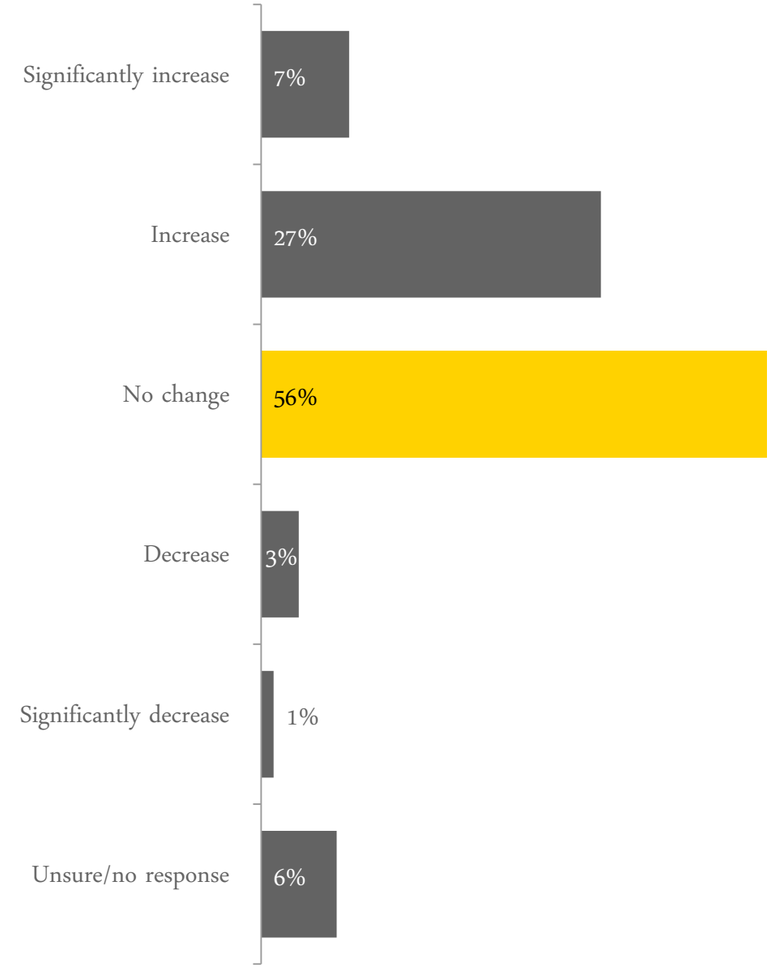
Company-owned generation

34% plan to increase self-generated power over the next five years

Percentage of current total power met through company owned generation



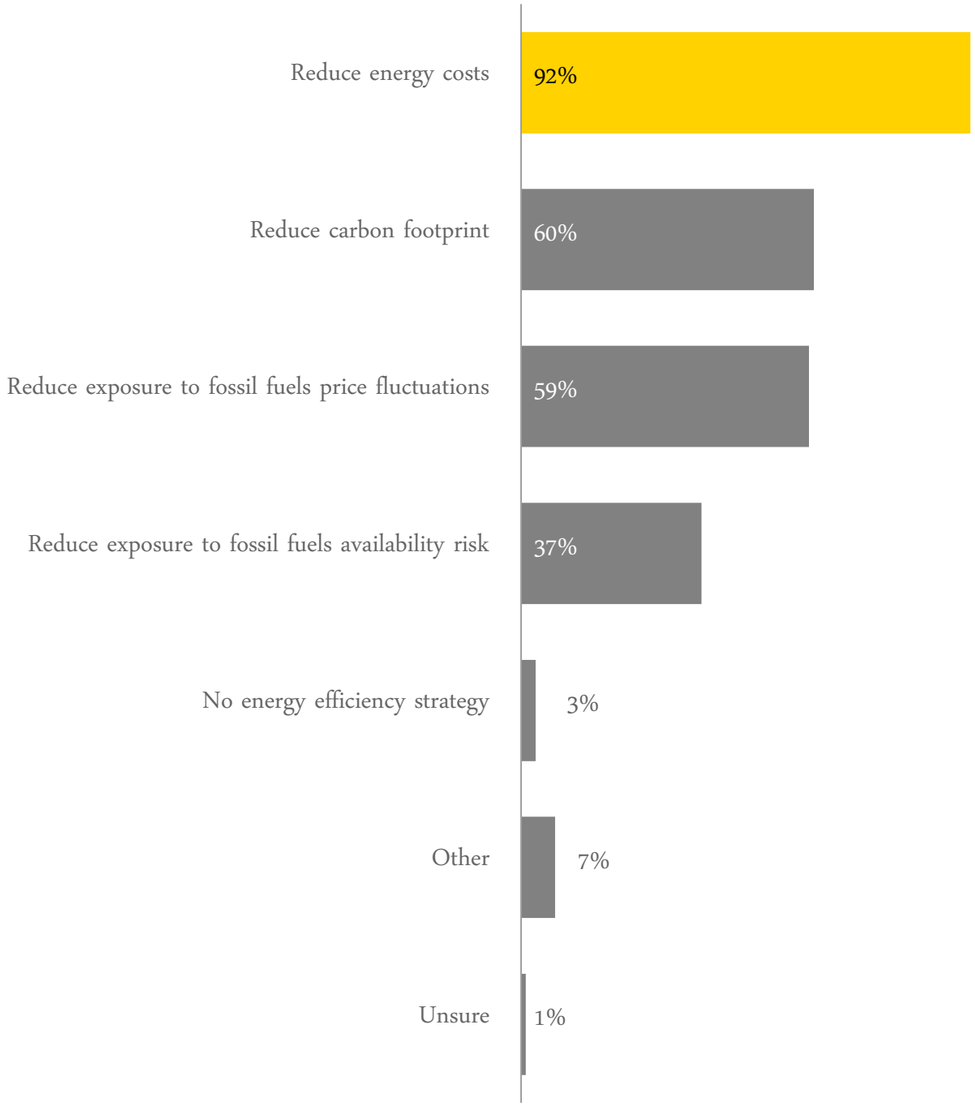
Anticipated change in amount of power met through company owned generation over the next five year



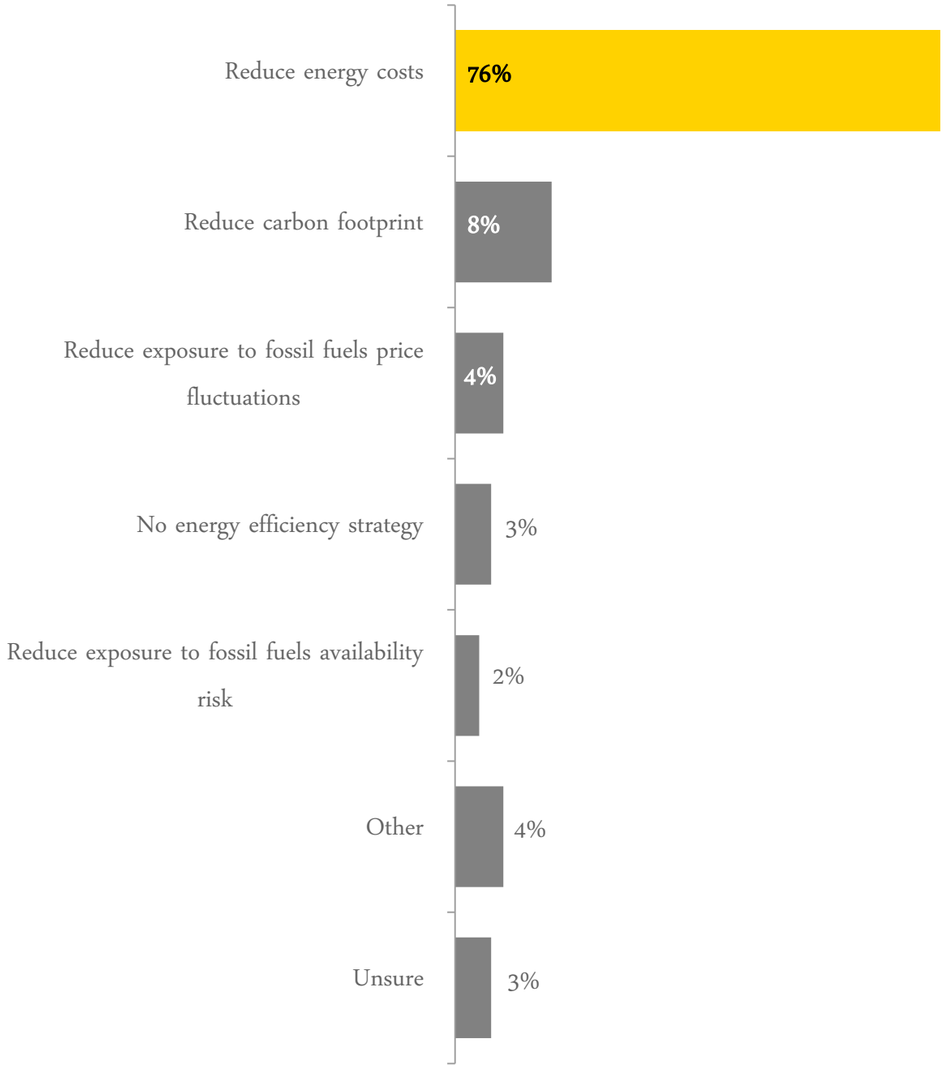
Source: Ernst & Young Corporate Energy Mix Survey 2012

Corporate energy efficiency objectives

Key energy efficiency objectives

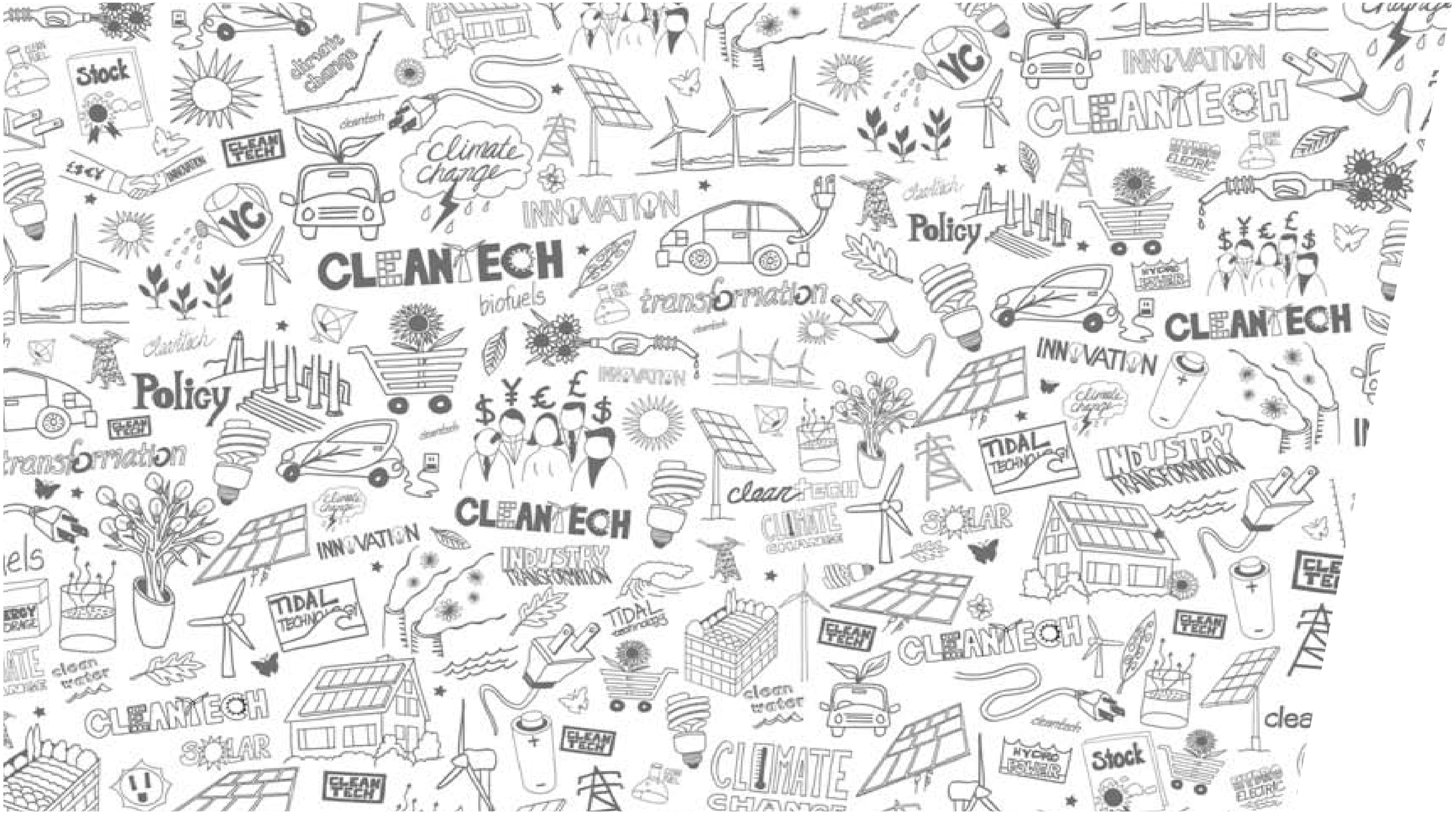


Ranking of the single most important energy efficiency objective



Source: Ernst & Young Corporate Energy Mix Survey 2012

Perspective on new financing sources



Capital formation

Key points

Government-led financing is winding down

- Government-led financing to leverage public capital will take different forms.
- Stimulus, tax credits and outright grants are scaling down as fiscal austerity sets in.
- There is momentum to show the leverage of public capital: e.g., tax equity financing.

Private capital needs are significant

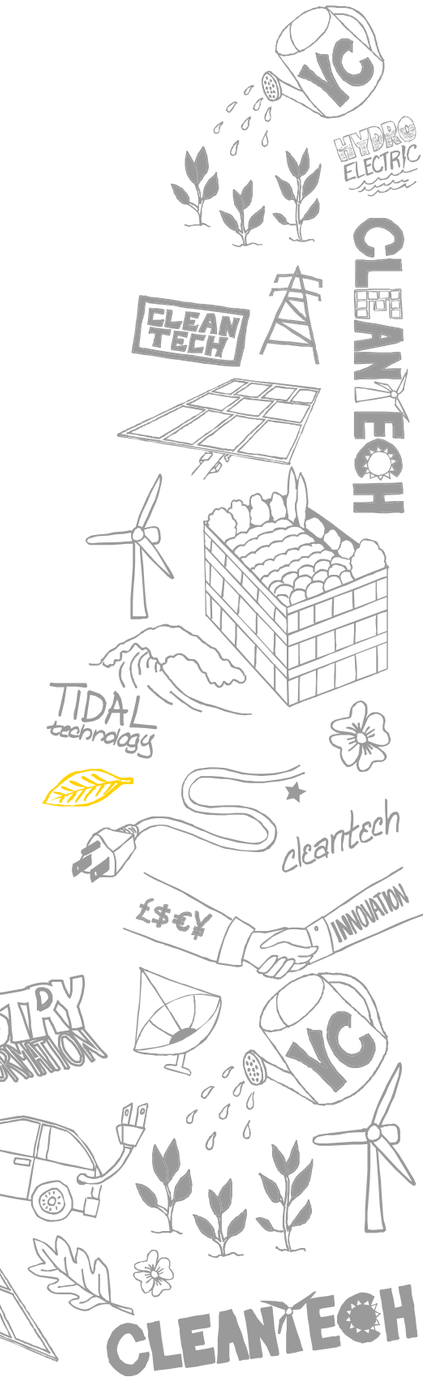
- Energy investment demands are considerable in developed countries — with demand emphasis for financing for infrastructure upgrades and transmission in the power sector.
- Renewable energy competes against other asset classes and markets for capital.
- International financing mechanisms steer toward emerging markets.

New sources of capital are needed

- Demand for tax equity outpaces the supply provided by established tax equity investors.
- Utilities cannot do it all, and while project finance is robust, it cannot be the only source.
- New debt and equity sources are needed.

New capital requires new structures

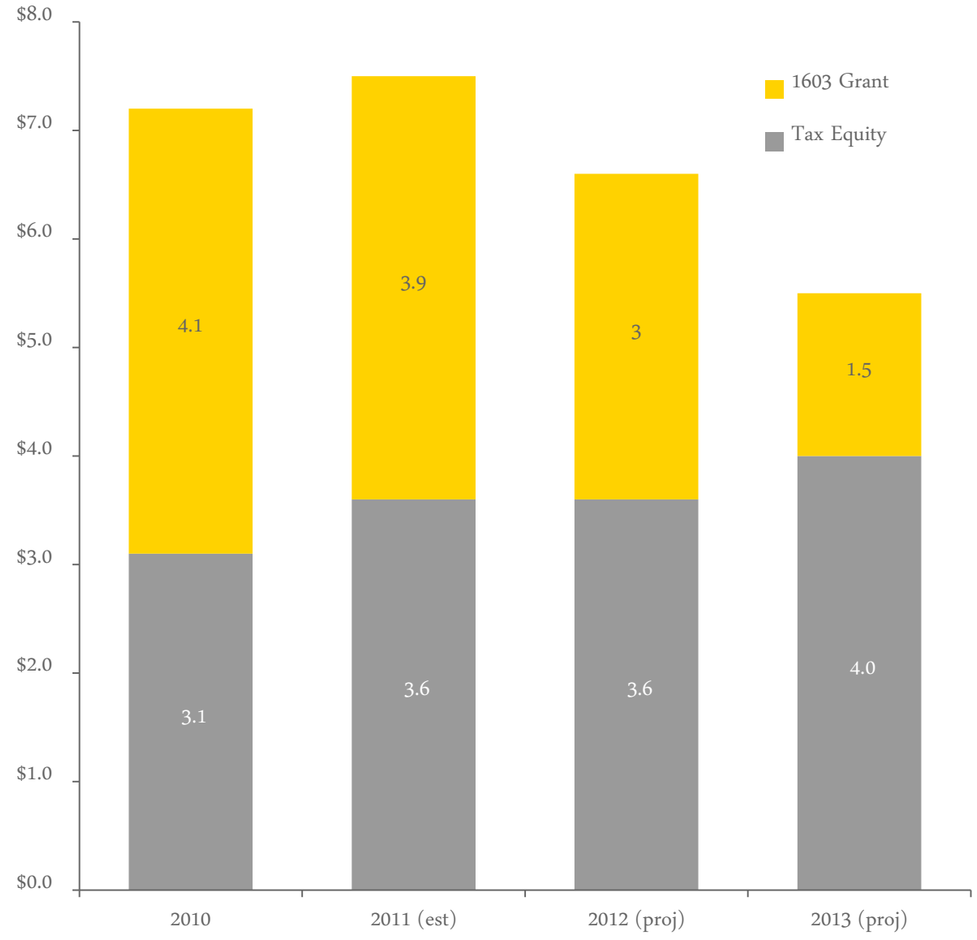
- Innovative structures are needed to access capital.
- New strategic relationships also key, for example; between developers and investors.



Leveraging tax equity in the US market

- Tax equity plays a pivotal role in renewable finance with the expiration of the ARRA Section 1603 grant program in December 2011. With the conclusion of the grant, developers have to resort to tax equity to monetize the established tax credits to entice outside project equity.
- However, demand for tax equity may outstrip the traditional supply provided by established tax equity investors.
- Greentech Media estimates demand for US$7 billion of tax equity compared with an estimated supply of approximately US$3.4 billion from current investors. This supply/demand imbalance could result in increasing tax equity yields making development more challenging.
- While tax equity yields for traditional structures are at very attractive levels, current market conditions are rewarding companies that want to deploy their tax capacity strategically:
  - Major investment banks are actively involved in the development of a secondary market for cash equity participants.
  - MidAmerican Energy's purchase of 49% of NRG's Agua Caliente Solar Project.

1603 grant vs. tax equity financing (US$b)



Capital and project financing challenges

- The traditional financing model is corporate (recourse) debt, supplemented by infrequent equity injections and a limited amount of project finance.
- This model will not attract sufficient capital to the renewables sector on a long-term basis.

The issues	▶ Insufficient capital for energy, utility and waste companies ▶ Infrastructure sector investment needed from a combination of pension funds, private sector and consumers to fund the shortfall ▶ New equity structures and new debt instruments needed to enable the investment

The inhibitors	▶ Limited public sector co-financing due to fiscal challenges/debt burdens.
	▶ **Basel III:** bank capital adequacy and liquidity restrictions.
	  ▶ Basel Committee estimate €577 billion common equity shortfall across top 87 banks globally
	  ▶ Deleveraging impact expected to be tenfold
	▶ **Project Finance:** banks unwilling to further increase exposure to the infrastructure sector
	▶ **Pension/insurance/life funds:** lack of experience and uncertainty over future pipeline of investments

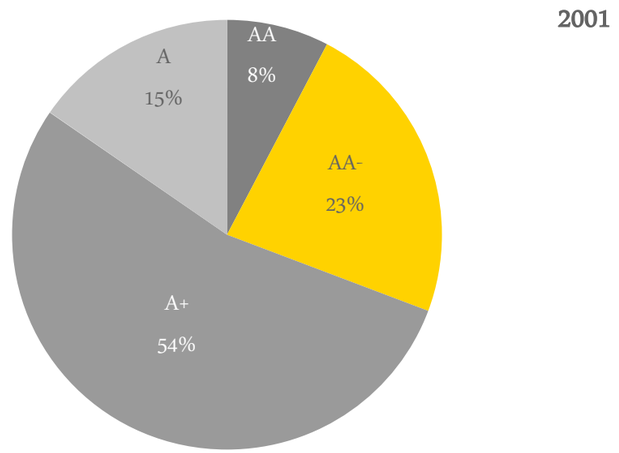
Risk environment	▶ Concerns over political and regulatory risks

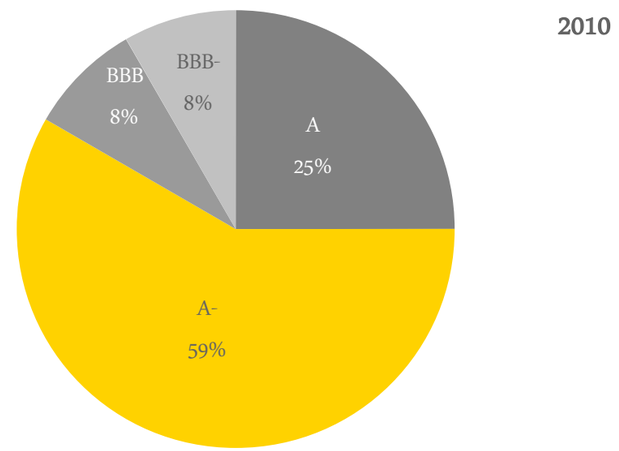
Traditional corporate finance not up to the task

Utility credit quality has steadily fallen

- In 2001, 10 of the top 13 utilities in Europe were rated AA+ to A+.
  - In 2010, none were in that range.
- Capex was on average 56% of top utility EBITDA in 2005.
  - In 2010, it was 64%.
- A- is an absolute minimum rating level.
- Downgrade to BBB category would increase cost of debt and cost of doing business.
- 7 of the top 13 utilities are now at A- level.
- Utilities' ability to deliver developed countries' renewable energy targets is constrained.

Credit ratings trajectory — top 12 integrated utilities





Attracting proverbial deep pools: two examples

Equity — investment funds

- Utilities may not want to accept the lower IRRs that lower leverage implies.
- But in a capital-constrained world, they may not have a choice.
- New asset classes are needed to soak up fund capital.
- Renewables can fit the bill if hurdles are overcome.
- Funds can pool assets to reach required deal size.
- Listing can attract new investors by providing liquidity (meeting regulatory requirements or providing visibility on potential exit).
- Funds can be structured to attract mezzanine-type investors.

Debt — structured finance

- Even post-credit crunch, there is still a vast pool of capital.
- Structured finance dwarfs traditional lending.
- Within a few years, collateralized loan obligations (CLOs) of renewable assets may be viable.
- This would allow banks to recycle capital lent to the sector.
- Currently, CLOs are restricted to government-backed loan books of single originators.
- Multiparty CLO of offshore wind loans would significantly ease funding pressure on the industry.

Structured finance and emerging solutions

Bond projects

- Increase in the number of new debt funds
- Infrastructure companies able to access debt markets without significant problems, locking in medium-term finance at historically attractive interest rates
- Growing appetite from bond investors for instruments with stronger credit quality
  - Financial innovations are being developed (e.g., effective targeted risk transfer techniques to enhance credit quality of projects)
- EU's Project Bond Initiative encouraging institutional investors to participate more in this asset class
- Basel III to bring profound changes to the global project finance sector and the ways it pursues funding, but considers project bonds favorably, from a capital coverage perspective
- Debt capital markets likely to account for an increasing share of European infrastructure companies' borrowing requirements

Other emerging solutions

- Public sector solutions
  - Public borrowing
  - Municipal bonds
  - Tax incremental funding
- Private sector innovation
  - Social and community funding models
  - Aggregated funding (green deal)
  - New conduits/structures enabling disintermediation