



# Welcome

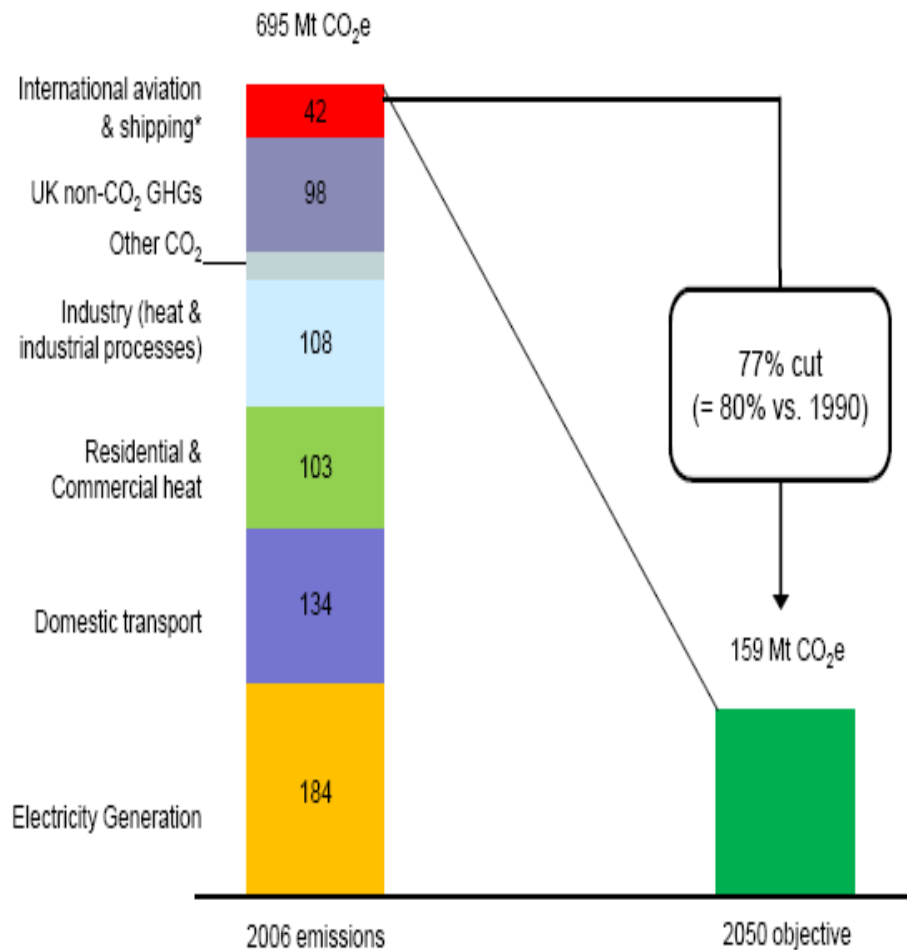
## Investing in the Future Seminar Series

# **Sustainable Energy as part of Northern Ireland's Economic Future?**

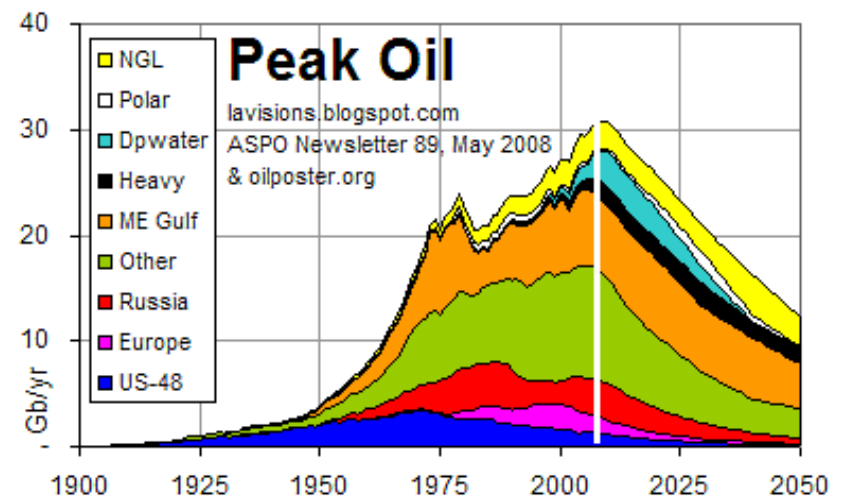
**Professor Neil J Hewitt**  
**Centre for Sustainable Technologies**

- Challenges
- What if we don't do this?
- Responses
- What might a sustainable energy economy achieve?

# Challenges

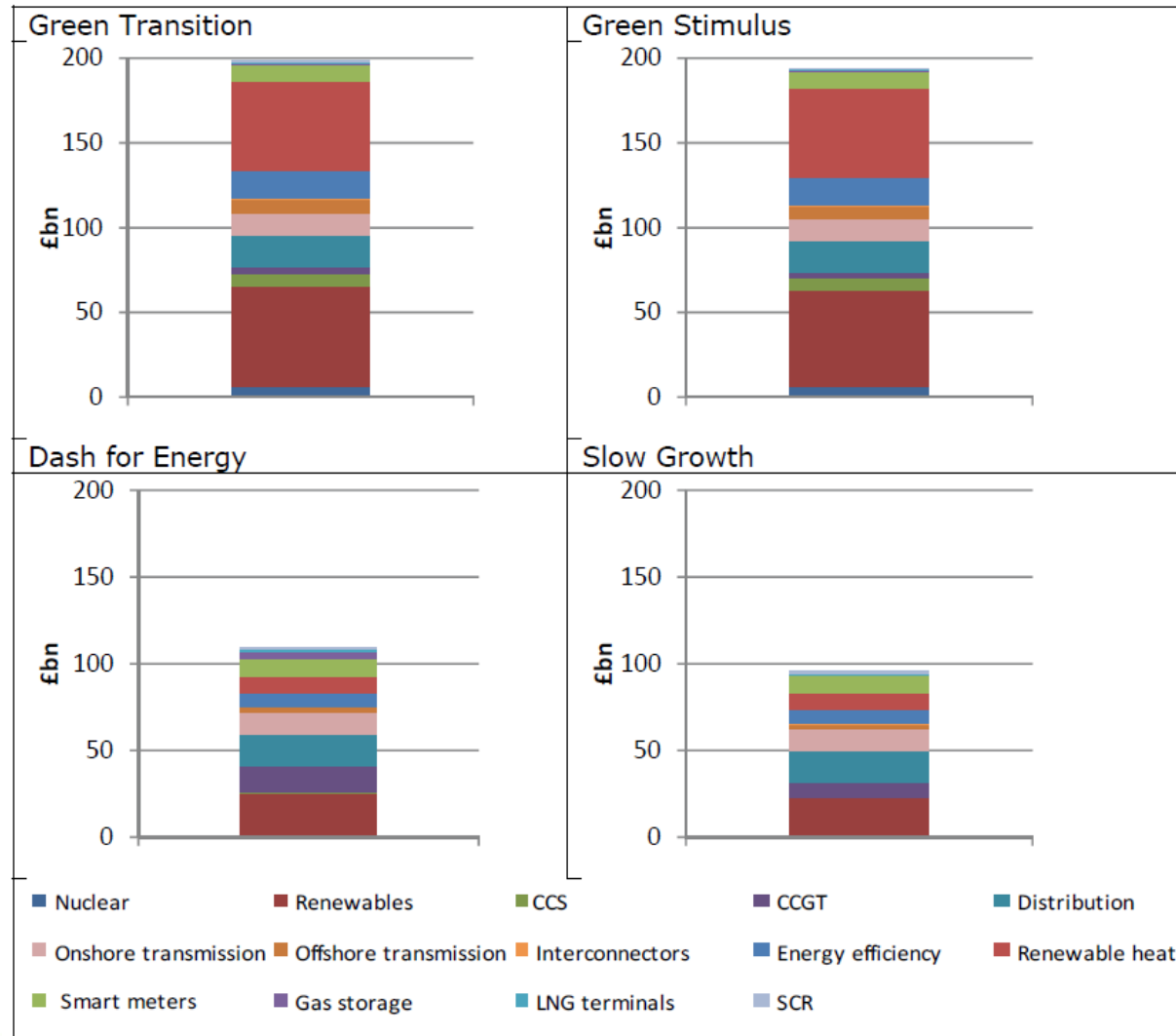


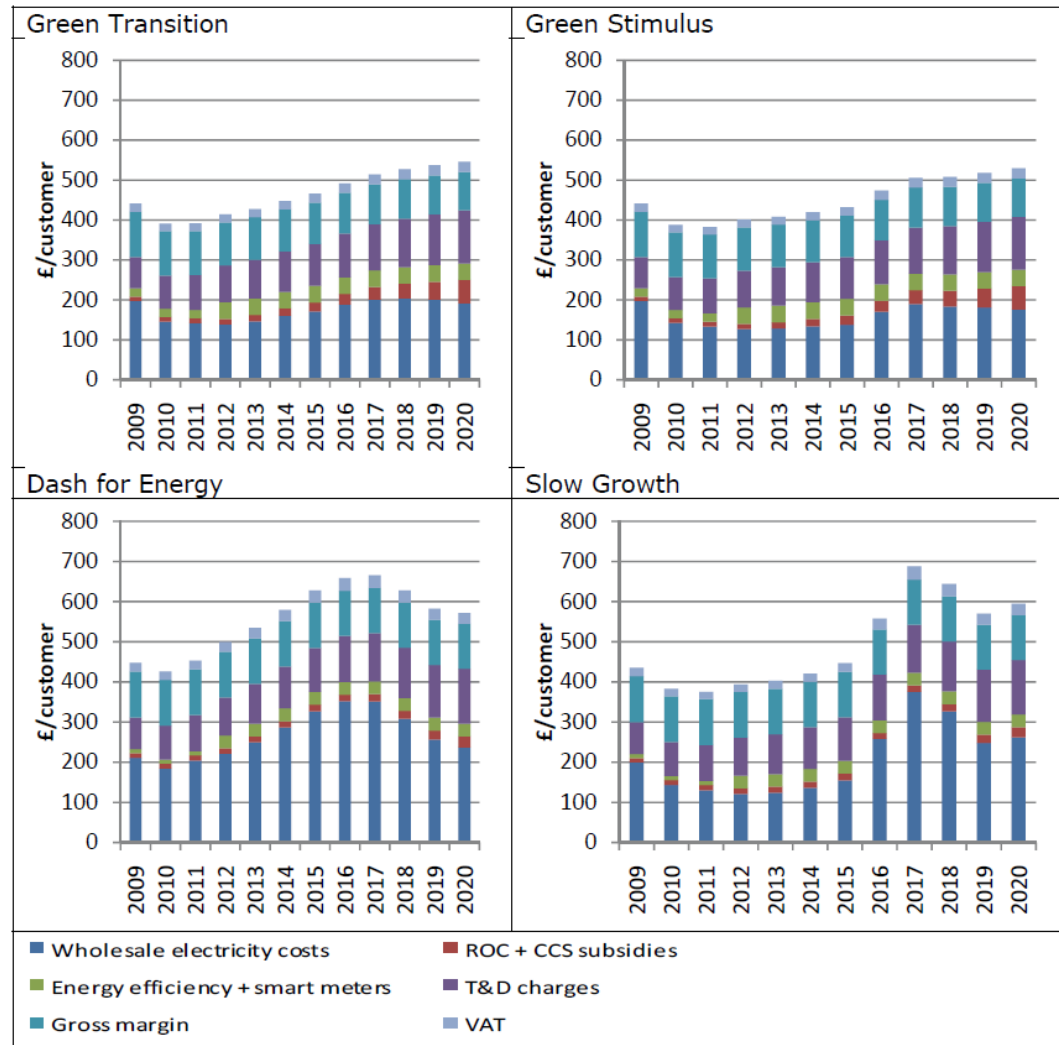
\* bunker fuels basis



# What if we don't do this?

# Future Investments – Discovery?

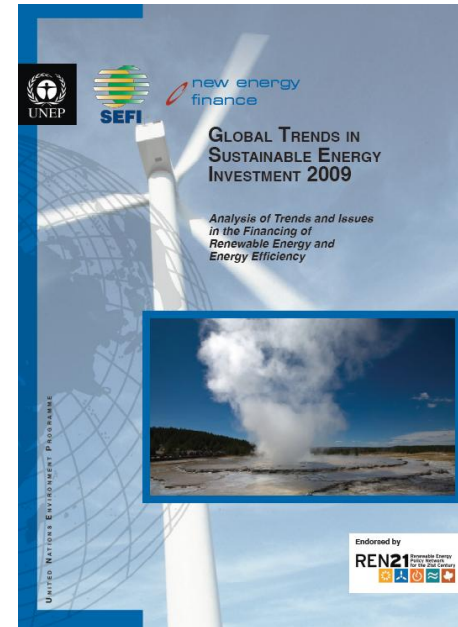






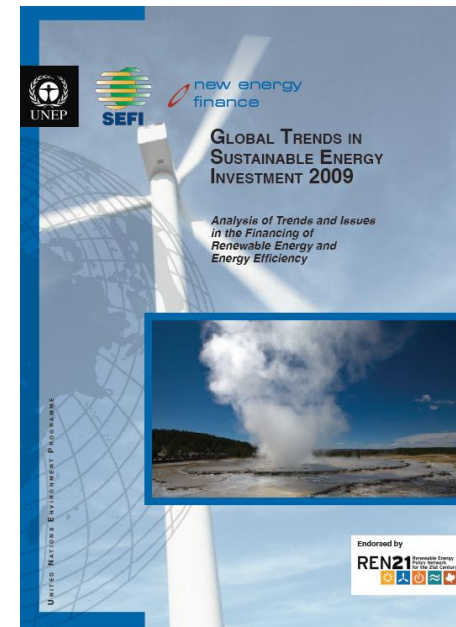
# Responses

- The International Energy Agency (IEA) estimates that \$16 Trillion (or \$550 Bn / year) will need to be spent on the energy-supply infrastructure globally between now and 2030.
- The global renewable energy spend was £59 Bn in 2007, a rise of over 40% on 2006.
- Over \$140bn (£85bn) was injected into renewable electricity production in 2008 out of a total in all kinds of power of \$250bn. China and other Asian countries ramped up spending as investment faltered slightly in Europe and the US due to the economic crisis.
- 2009 started ominously with a 53% slump in first quarter renewables investment to \$13.3bn, according to the latest annual Global Trends in Sustainable Energy Investment report.



# Global Trends in Sustainable Energy Investment

- Investment in the sustainable energy market has defied the global recession
  - Growing by around 5%
  - \$148 billion in 2007 to around \$155 billion in 2008.
- Support for sustainable energy investments will now depend on several factors.
  - G-20 group stimulus packages totalling \$3 billion, amounting to 2% of their GDP in 2009 and 1.5% in 2010.
- Several economies, (China, Japan many European ones, Republic of Korea and the United States), have earmarked multi-billion investments in clean energy, including smart grids, under the banner of a global 'green new deal'.
- Investment needs to reach a half trillion dollars per annum by 2020 to help ensure a peak in greenhouse gas emissions by then.
- Intelligent market mechanisms and incentives including a review of the well over \$200 billion a year spent on subsidising fossil fuels.



# **What might a sustainable energy economy achieve?**

- “Renewable Energy has created over 300,000 jobs in Europe”
- “We (the UK Renewable Energy Strategy) estimate that the expansion in renewable energy in the UK could provide 160,000 new jobs by 2020

Andris Piebalgs, EU Energy Commissioner, 2009

UK Renewable Energy Strategy Consultation, 2008

- How will the UK meet the 34 percent cut in emissions on 1990 levels by 2020
- Already at 21% of 1990 levels
- **By 2020:**
- More than 1.2 million people will be in green jobs.
- 7 million homes will have benefited from whole house energy efficiency packages
- More than 1.5 million households will be supported to produce their own clean energy.
- Around 40% of electricity will be from low-carbon sources, from renewables, nuclear and clean coal.
- Halving gas imports
- New cars will emit 40% less carbon than now.

 HM Government

## The UK Low Carbon Transition Plan

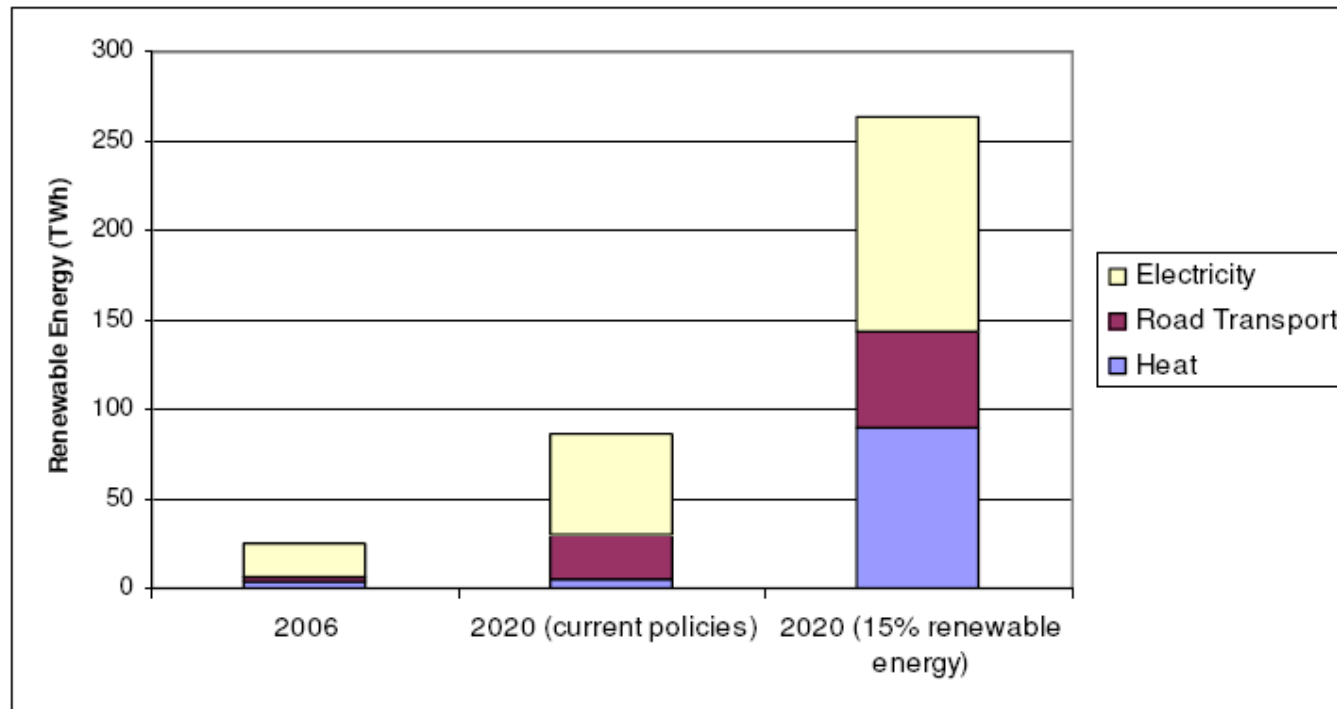
National strategy for climate and energy

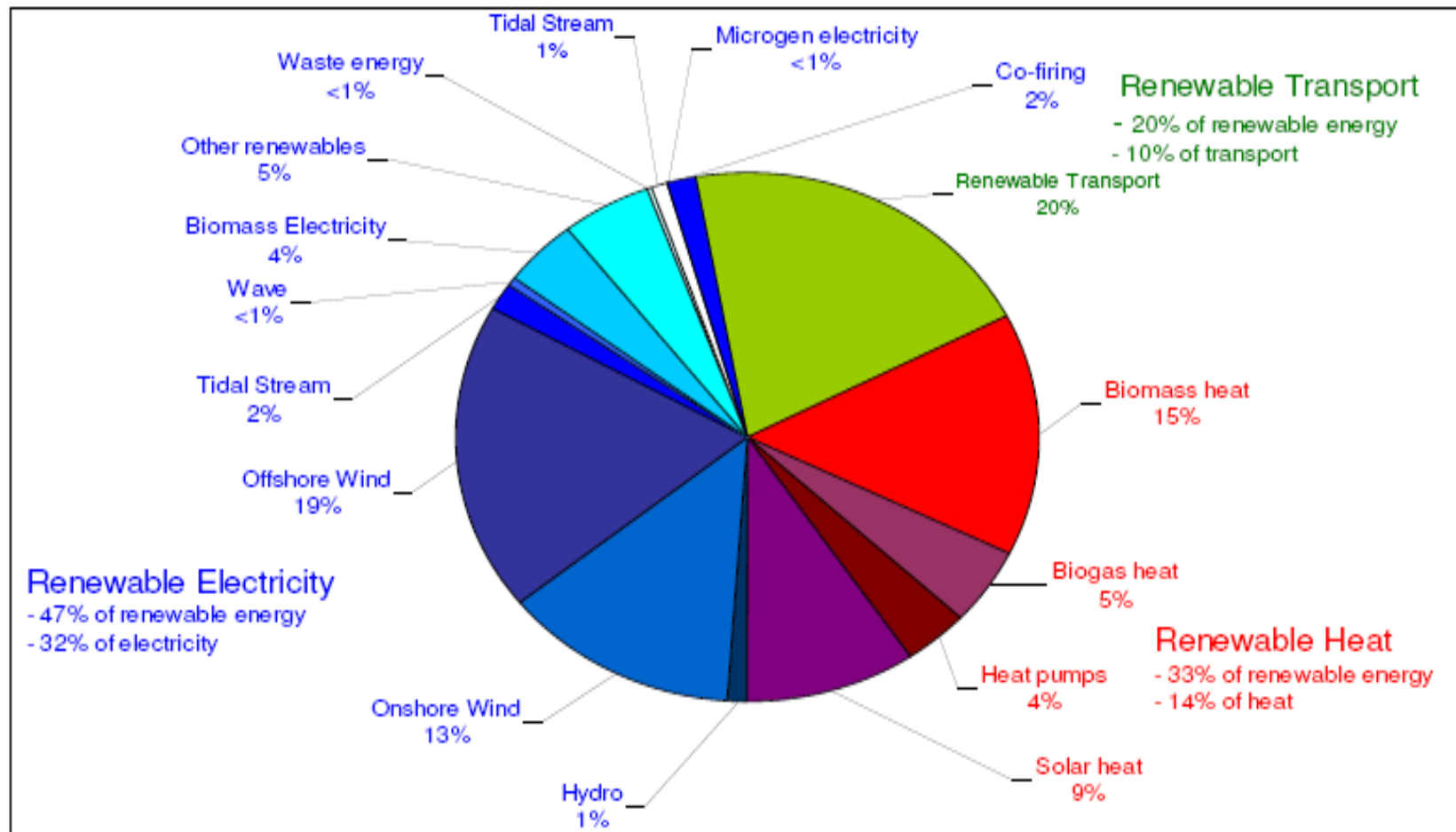


Building  
Britain's Future

ACT ON  
CO<sub>2</sub>

- Legal obligation:
  - – EU Renewable Energy target: 20% by 2020
  - – Proposed UK share: 15% by 2020







**BELFAST TELEGRAPH FRIDAY FEBRUARY 6 2009**

## Job find

**NORTHERN IRELAND'S BIGGEST AND IRELAND'S FAST**

**Creation of 'green jobs' encouraged**

**People on the move**

**Name:** Brian Gibson  
**Company:** MYA, loss adjuster  
**Position:** Executive adjuster  
**Track record:** Brian has more than 20 years' experience dealing with HWV and commercial property claims across a broad risk spectrum, with particular expertise in the church and charity sectors.

**Name:** Dominic Preston  
**Company:** Grant Thornton UK LLP  
**Position:** Partner, tax  
**Role:** Dominic is responsible for GTV's Belfast tax practice, including all aspects of corporate tax, personal tax and financial planning, aimed at entrepreneurial and privately-held businesses.  
**Track record:** Having spent the past nine years at a Big 4 firm in London.

**NORTHERN** Ireland has the opportunity to create 'green jobs' by maximising its sustainable energy activity.

That was the message from the Energy Minister, Arlene Foster when she chaired the first meeting of the Interdepartmental Working Group (IDWG) on sustainable energy, last week.

The aim of the IDWG is to ensure a co-ordinated approach across Government to the promotion of sustainable energy, including energy efficiency and renewable energy.

The group was made up of senior representatives from all Northern Ireland government departments, as well as Invest NI. All have policies and practices which could aid the promotion of sustainable energy.

In her welcoming remarks to the group, the Minister said: "Sustainable energy has never been more important than it is today in maximising economic opportunities and ensuring security of our energy supply. 'Green jobs' can be created through increased sustainable energy activity in areas such as energy efficiency and renewable technology. Anyone affected by recent power cuts will have had a timely reminder of how fundamental energy is to all we do: for lighting, heating and powering our productivity."


Mrs Foster added: "The attendance of departmental representatives at this meeting shows the commitment by all the Executive Ministers to this increasingly important area of work."

The Minister outlined the need for a more concerted Northern Ireland effort to maximise our sustainable energy activity to the benefit of consumers and the overall sustainability of the economy. She added: "A key challenge for the group will be to develop actions and structures that will effectively deliver an improved Northern Ireland solution to sustainable energy policy and delivery."

"The establishment of this group provides a clear message to stakeholders that the Executive recognises the challenges presented by sustainable energy issues, and that this area presents real opportunities, particularly for 'green job' creation in Northern Ireland."


The IDWG will develop a report of recommendations in respect of co-ordinated sustainable energy activity in Northern Ireland by autumn this year, including appropriate structure(s) to continue joined up delivery.

## Higher Education



**Invest Northern Ireland**  
Building Locally  
Competing Globally

**Maximising Business Opportunities from Sustainable Energy**  
Energy Technology & Service Sector Collaborative Opportunities in Northern Ireland

  
European Regional Development Fund  
Investing in your future

- Solar photovoltaics
- Wind turbines
- Small scale hydro
- Solar hot water
- Ground source heat pumps
- Air source heat pumps
- Biomass
- Micro-chp
- Wave/Tidal
- etc



- 1<sup>st</sup> Generation Technologies
  - Steel
  - Precious metals
  - etc
- 2nd Generation
  - Biopolymers
  - etc

## China Car Times

Foreign Exchange China  
Unbeatable Rates & No Fees  
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Explaining the Chinese Car Industry and Chinese Cars

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### China to begin hoarding precious metals used in hybrids

25 AUGUST 2009

NO COMMENT



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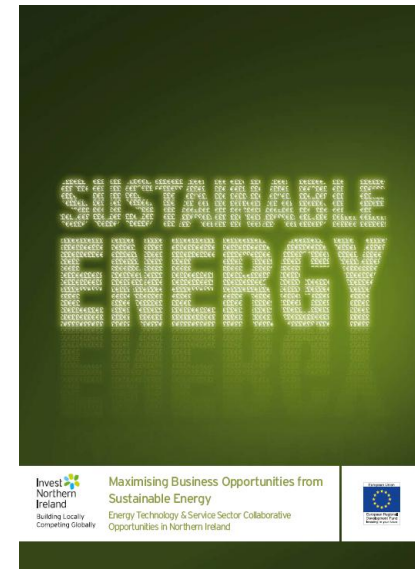
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From The Telegraph:

A draft report by China's Ministry of Industry and Information Technology has called for a total ban on foreign shipments of terbium, dysprosium, yttrium, thulium, and lutetium. Other metals such as neodymium, europium, cerium, and lanthanum will be restricted to a combined export quota of 35,000 tonnes a year, far below global needs.

and

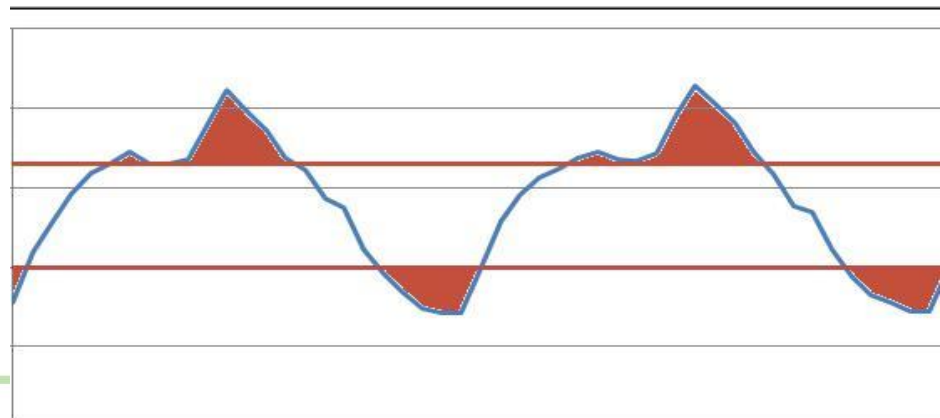
- Integrated Building Technologies (as buildings account for around 40% of all energy usage in most countries)
- Offshore Energy (including wind, tidal and wave – GB and RoI backing)
- Bioenergy (including anaerobic digestion and biofuels from waste and sustainable sources.
- Energy Storage (to help smooth out fluctuations in demand, intermittent supply, and quality of supply.





## Benefits of energy storage technologies

- make non-dispatchable renewable energy sources more reliable;
- smooth the energy peaks in demand;
- prolong “the life” of existing conventional plants;



# What will this cost?

- What is expected?

Venture Capital	Private Equity	Infrastructure Funds	Pension Funds	Bank Mezzanine Debt	Bank Senior Debt
Start ups, new technology, prototypes	pre IPO companies, demonstrator technology	Proven technology, Private companies,	Proven technology	Demonstrator / Proven technology, New Companies	Proven technology, established companies
>50% IRR	35% IRR	15% IRR	15% IRR	LIBOR + 700 bps	LIBOR + 300bps



**PRIVATE FINANCING OF  
RENEWABLE ENERGY**  
- A GUIDE FOR POLICYMAKERS -



- What is expected?



**Bloomberg**  
NEW ENERGY FINANCE



**PRIVATE FINANCING OF  
RENEWABLE ENERGY**  
- A GUIDE FOR POLICYMAKERS -





- Remove 25%-50% of costs of energy efficiency and renewable energy
- Make as many components as possible from alternative materials
- Make the technologies “smart”
- Explore new business models e.g. funding, utilities etc



# Discussion