India & UK Energy Policy

Different countries, cultures and challenges

Zahras Duwahir
V.Ravi Babu
L.Sravanthi
Pranab Das
Sminu B
Anthony Browne
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Fuel should be flexible and reliable to make process eco-friendly and profitable.
Energy Framework Process

- The three parameters of the triangle are carbon emission, energy cost and security.
- Energy companies try to reduce carbon emission and energy cost in balance to an increase in security of supply.
Energy Supply in India & the UK

- Considered as a developed nation
- Fossil fuel plays a vital role in supply
- Ambitious target set to achieve CO₂ reduction

- Considered as a developing nation
- Coal and oil are the major
- Meeting demand is more important than mitigation from CO₂
Two Challenging Case Studies...

• Scotland
  • 33 Counties
• North East India
  • Assam
  • Meghalaya
  • Manipur
  • Mizoram
  • Nagaland
  • Arunachal Pradesh
  • Tripura
Two Challenging Case Studies...

• Scotland
  • Area = 78,772km²
  • Population ≈ 5.2 million
  • Population Density = 66/km²
  • Energy demand ≈ 175TWH
  • Economic Growth ≈ 0.7%

• North East India
  • Area = 262,230km²
  • Population ≈ 39 million
  • Population Density = 149/km²
  • Energy Demand ≈ 13.5 TWH
  • Economic Growth ≈ 22%
Current Problems

• Scotland
  • Energy Poverty
  • Transmission challenges
  • Unexpected power cuts due to unpredicted weather changes
  • High peak loads during winter
  • Carbon emission mitigation
  • Vulnerable people

• North East India
  • Energy Poverty
  • 6h/day power cuts
  • 23-31% transmission losses
  • Limiting economic growth
Current Problems...

UK’s energy poverty statistics

[Graph showing energy poverty statistics from 1996 to 2008, with bars for England, Scotland, Wales, and N. Ireland.]

- **England**: The bar for England is consistently the highest across all years, indicating a higher number of households in energy poverty compared to other regions.
- **Scotland**: The bar for Scotland shows a lower number of households in energy poverty compared to England, but still higher than for Wales and N. Ireland.
- **Wales**: The bar for Wales is the smallest, indicating the lowest number of households in energy poverty among the regions shown.
- **N. Ireland**: The bar for N. Ireland is similar to Scotland, indicating a moderate number of households in energy poverty.

Options

• Smart Grids

• Consumption Reduction

• Power Generation:

<table>
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<tr>
<th>Type</th>
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<th>North East India</th>
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<tr>
<td>Nuclear</td>
<td>Yes</td>
<td>No- seismic activity</td>
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<tr>
<td>Coal</td>
<td>No- carbon producing</td>
<td>No- carbon producing</td>
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<tr>
<td>Solar PV</td>
<td>No- poor light</td>
<td>Yes</td>
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<td>Wind</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Hydroelectric</td>
<td>Yes</td>
<td>No- seismic activity</td>
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<tr>
<td>Biomass</td>
<td>No- insufficient local feed</td>
<td>Yes</td>
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<tr>
<td>Gas</td>
<td>No- carbon producing</td>
<td>No- carbon producing</td>
</tr>
<tr>
<td>Oil</td>
<td>No- carbon producing</td>
<td>No- carbon producing</td>
</tr>
</tbody>
</table>
Current Policy

- Scotland
  - Climate Change Act 2008
  - Feed in tariffs
    - Already abandoned
  - Energy Mix

- North East India
  - Rajiv Gandhi Grameen Vidyutikaran Yojana (2005)
  - Rural electrification policy (2006)
  - 11th five year plan (2007-2012)
Our Goals

- Scotland
  - Energy Security
  - Carbon reduction
  - Overcome transition costs
  - Support economic growth
  - Attitude shift

- North East India
  - Energy Security
  - Carbon Abatement
  - Support Economic Growth
Our Policies

• Scotland
  • Smart grids
    • Individually assessed minimum consumption = low cost per unit
    • Over minimum consumption = high cost per unit
  • Large privatized plant
    • Nuclear
    • Hydroelectric
  • Micro generation
    • Cheap Government Loans
    • Wind
    • Oscillating columns
    • Passive Solar
    • Efficient Heating
• Education
  • Reduce consumption
    • Traditional Pass Times
    • Daily Innovation (eg Blackle)
Our Policies

• North East India
  • Privatization of Electricity Industry
  • Smart Grid
    • Individually assessed minimum power requirement (low cost)
    • Over minimum charged at high cost
    • Medium biomass plants (by tender)
  • Micro generation
    • Cheap Government Loans
      • Biomass gasification
      • Solar
      • Passive solar
      • Wind
Conclusions

• Smart Grids
• Micro-generation
• Suitable for local environment
• Encourage local development
References

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Department of Energy & Climate Change, Annual; Report on Fuel Poverty Statistics, 2010

N. Robinson, Chris Huhne Briefs MPs on Long-Term Carbon Target, in BBC News, 2011

Questions???