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<http://eni.ucd.ie>

Why we believe 40% is the right thing to do.

Gareth Allen

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Lisa Ruttledge

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Eamon Keane

David Gibbons

EirGrid conference- 14th October 2009



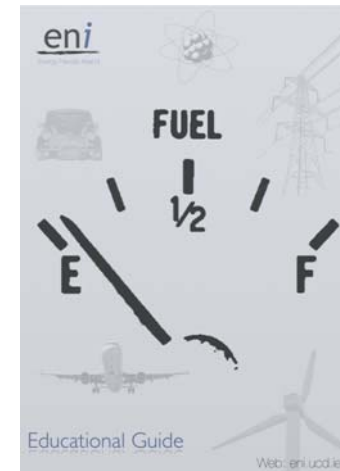
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Who are we?



- Funding
 - Charles Parsons Research Scheme and Electricity Research Centre
- Brief
 - Educate general public
 - Bust myths
- Outputs:

Response to IAE



Educational Booklet

& many others....



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Presentation Structure

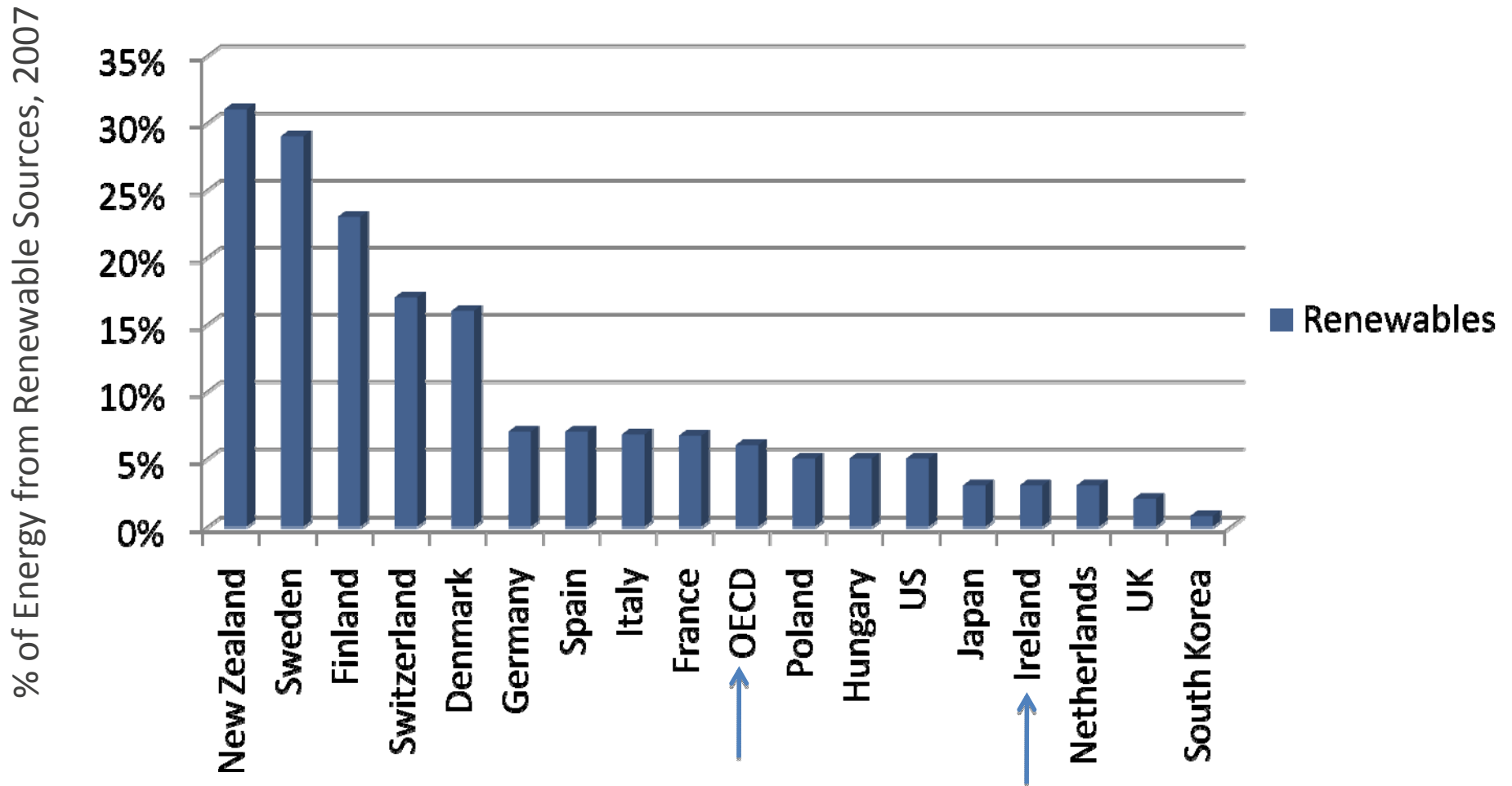
- Where is Ireland now?
- What are the Targets?
- What should an effective electricity energy policy achieve?
- What are the possible alternative strategies?
 - Benefits and restrictions of each
- A Closer look at 40%
 - Pros & Cons
- Comparison/Conclusion

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Where is Ireland now?

Renewable Exploitation



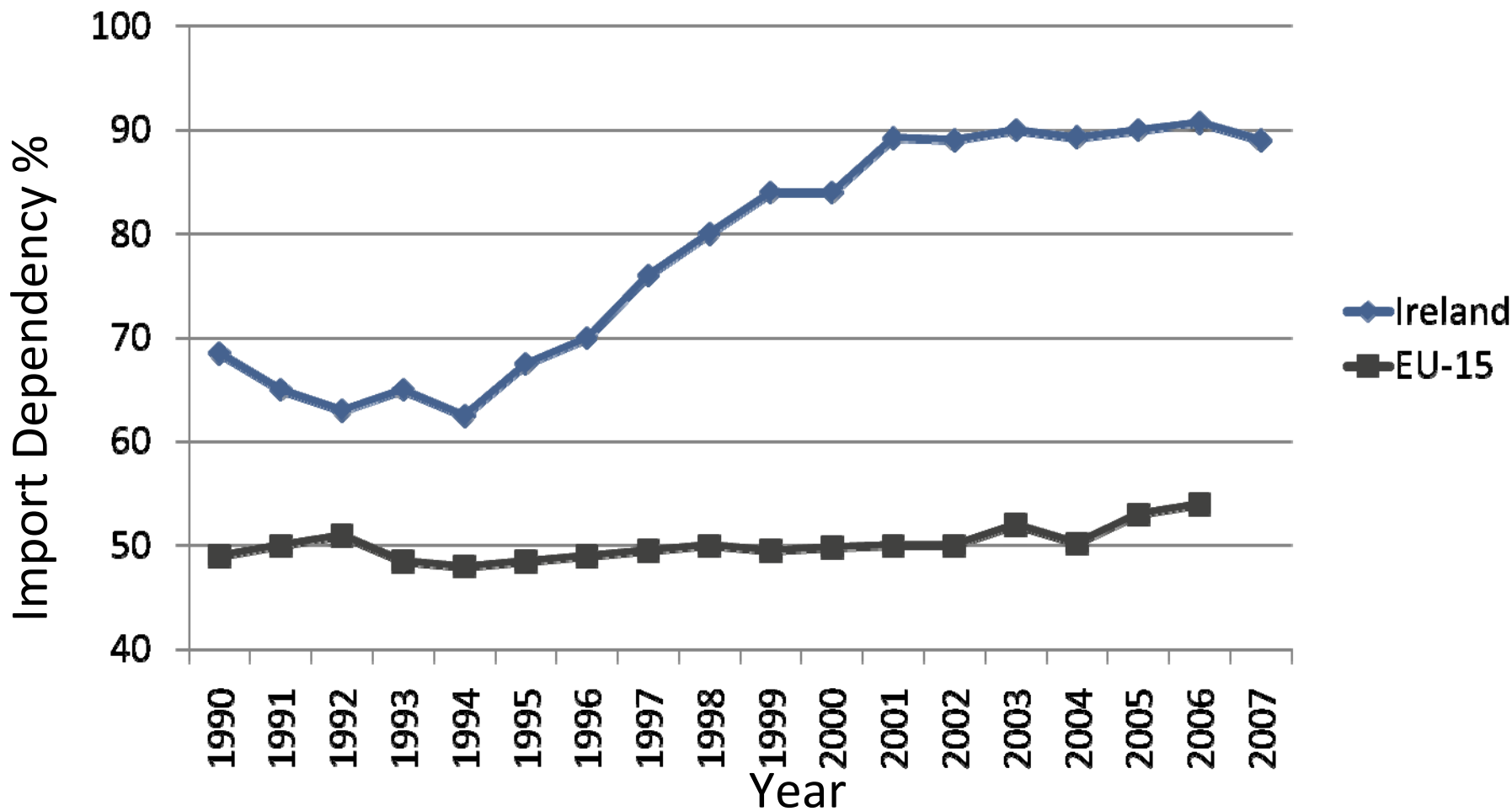
Sources: National Competitiveness Council (Annual Report 2009). International Energy Agency



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Energy Import Dependency

Ireland vs. EU
1990-2007



Sources: National Competitiveness Council (Annual Report 2009). Sustainable Energy Ireland (Energy in Ireland 1990-2007), Eurostat (Environment and Energy)

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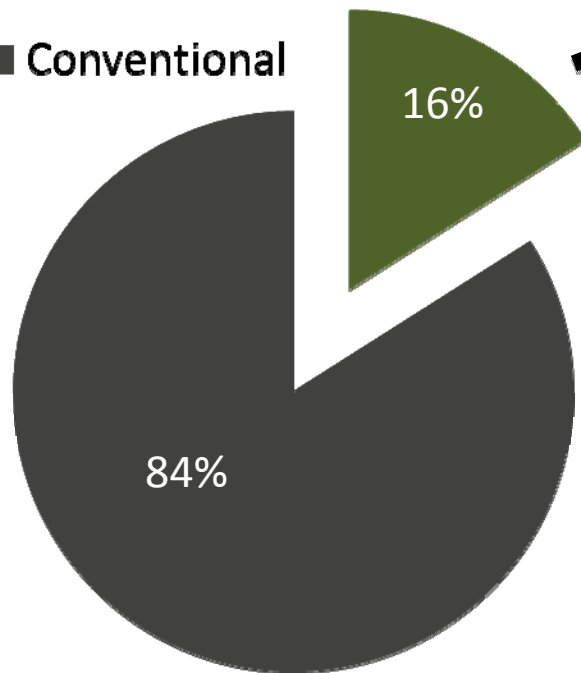
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What are the EU Targets?

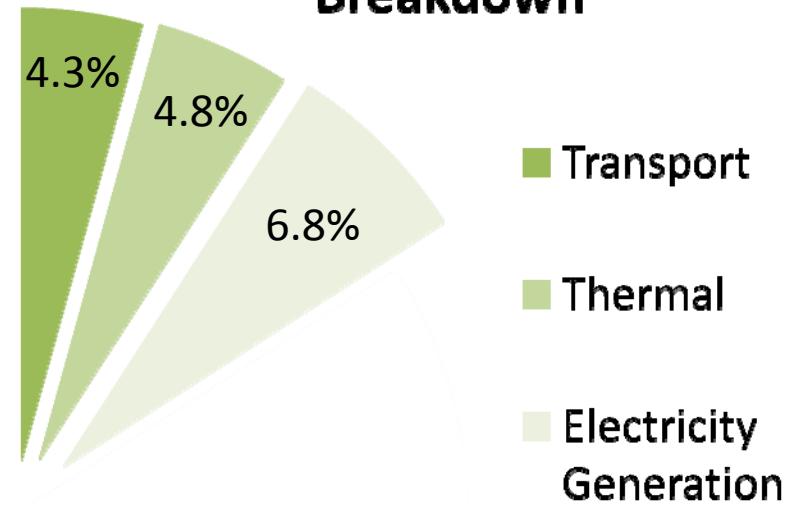
16% of TFE Consumption renewable by 2020

TFE Consumption

- Renewable
- Conventional



Breakdown



Sector	% of TFE	Renewable Target by 2020	Renewable impact as % of TFE
Transport	43%	10%	4.3%
Thermal	40%	12%	4.8%
Electricity	17%	40%	6.8%
Total	100%		~16%

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*What should an effective
electricity energy policy
achieve?*



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The Three Pillars of Energy Policy

Security of
Supply



Cost



Climate
Change



Which policy will achieve the best balance?



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40% Electricity Target

CONS

- Too Expensive?
- Visual Impact?
- Still too reliant on gas?

PROS

- Improves security of supply
- Reduces CO₂ emissions
- Meets EU targets
- Exploits huge natural resource
- Stabilise electricity prices
- Complemented by DSM

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Possible Alternative Strategies



Nuclear



Carbon Capture
and Sequestration



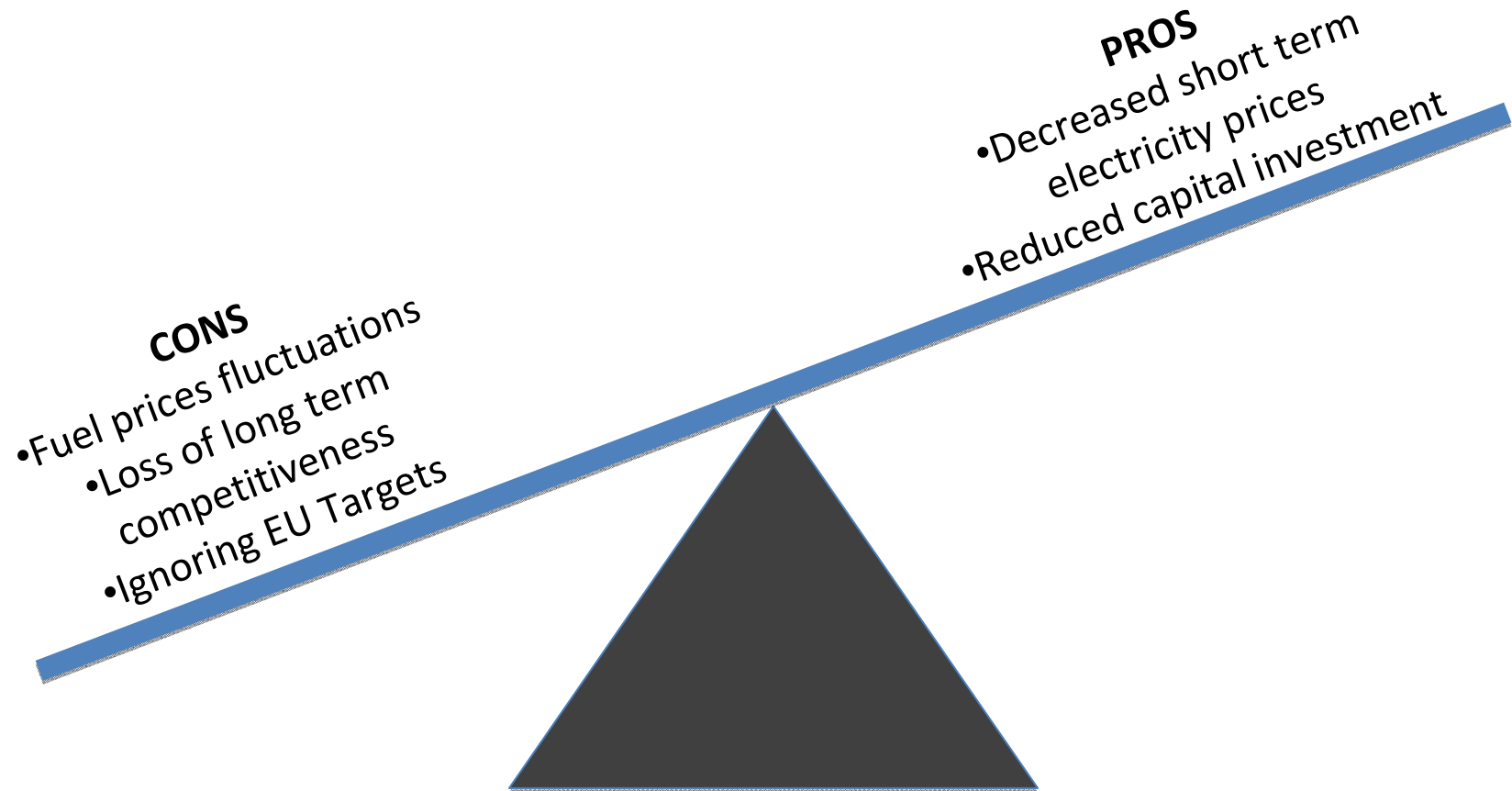
Business As
Usual

Which other direction could we
take?

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BAU?

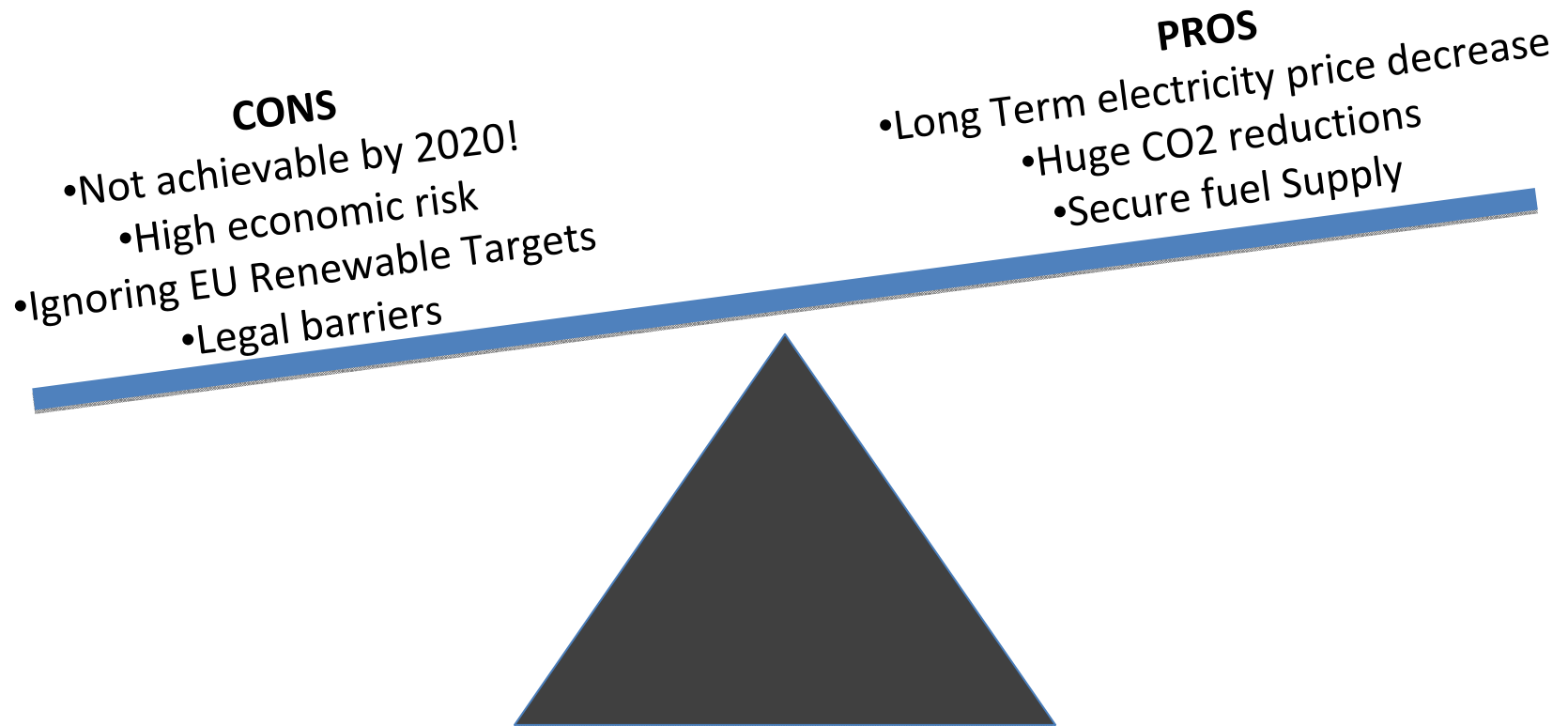


Summary: Trading long term security of supply and sustainability for reduced short term costs.

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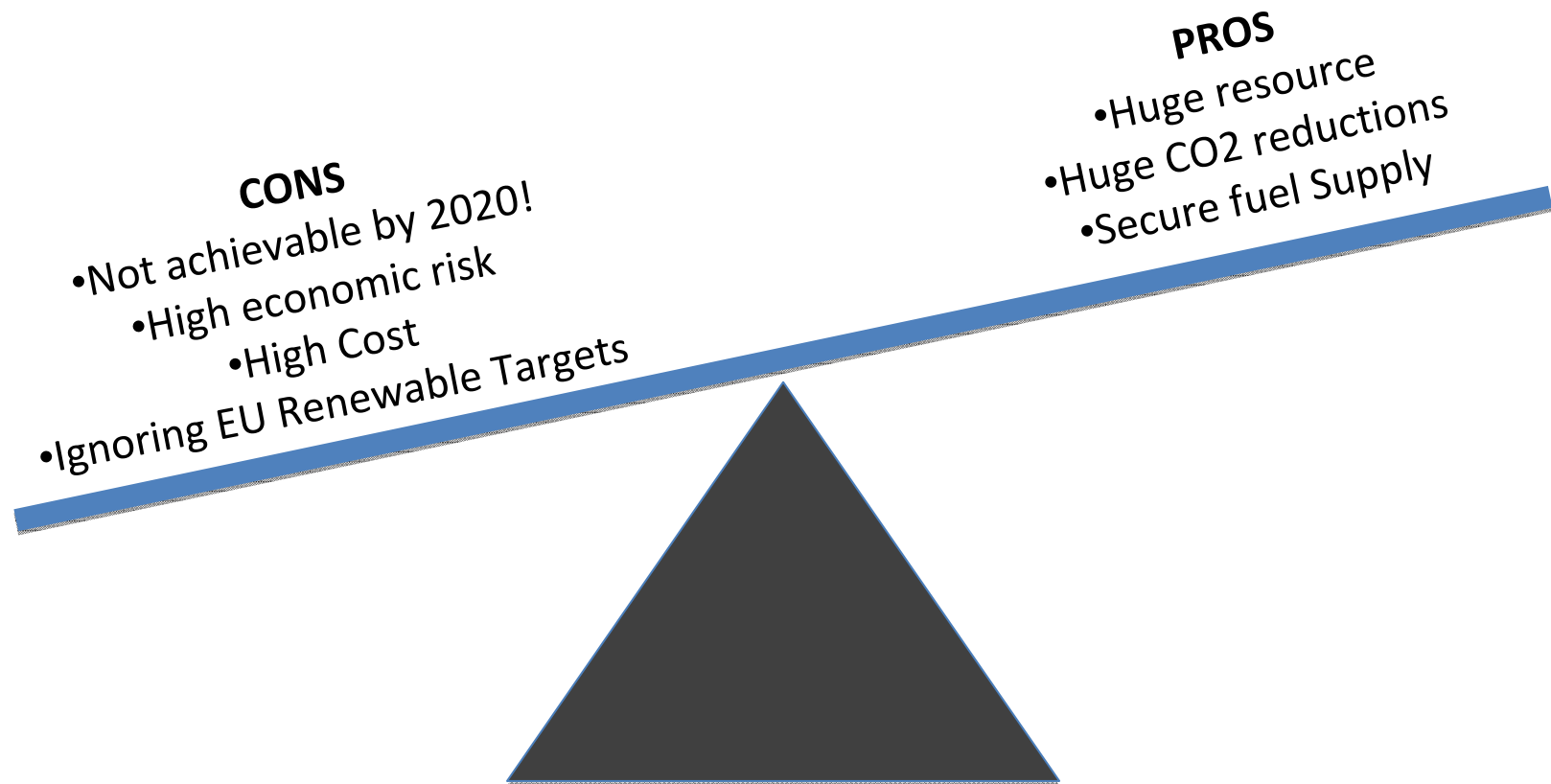
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Nuclear?



Summary: An option Ireland should seriously consider as part of the fuel mix going forward. However nuclear's ability to solely solve our energy challenges is limited

Carbon Capture and Sequestration?



Summary: Its implementation before 2020 is questionable. However it should be a serious consideration for future.

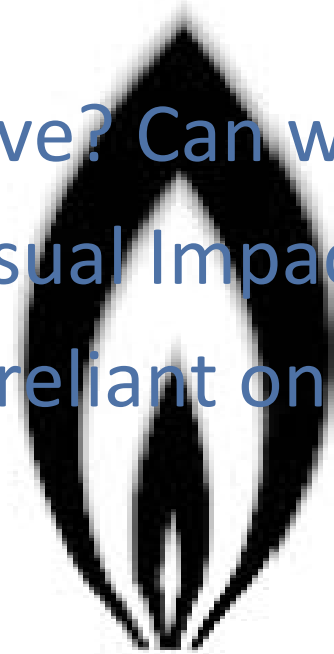
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A closer look at 40%

Cons to 40%

- Too expensive? Can we afford it?
 - Visual Impact
 - Still reliant on gas



Can we afford it?

- Gas and oil prices likely to rise
- Long run, short run trade off
- Many costs and benefits cannot be quantified
 - Security of supply

Still reliant on Natural Gas

- Gas is a medium term solution
- The least polluting of the fossil fuels
- Currently the cheapest option available to complement wind
- An overall decreased reliance on gas





Visual Impact....

- Trading long term environmental sustainability for aesthetics

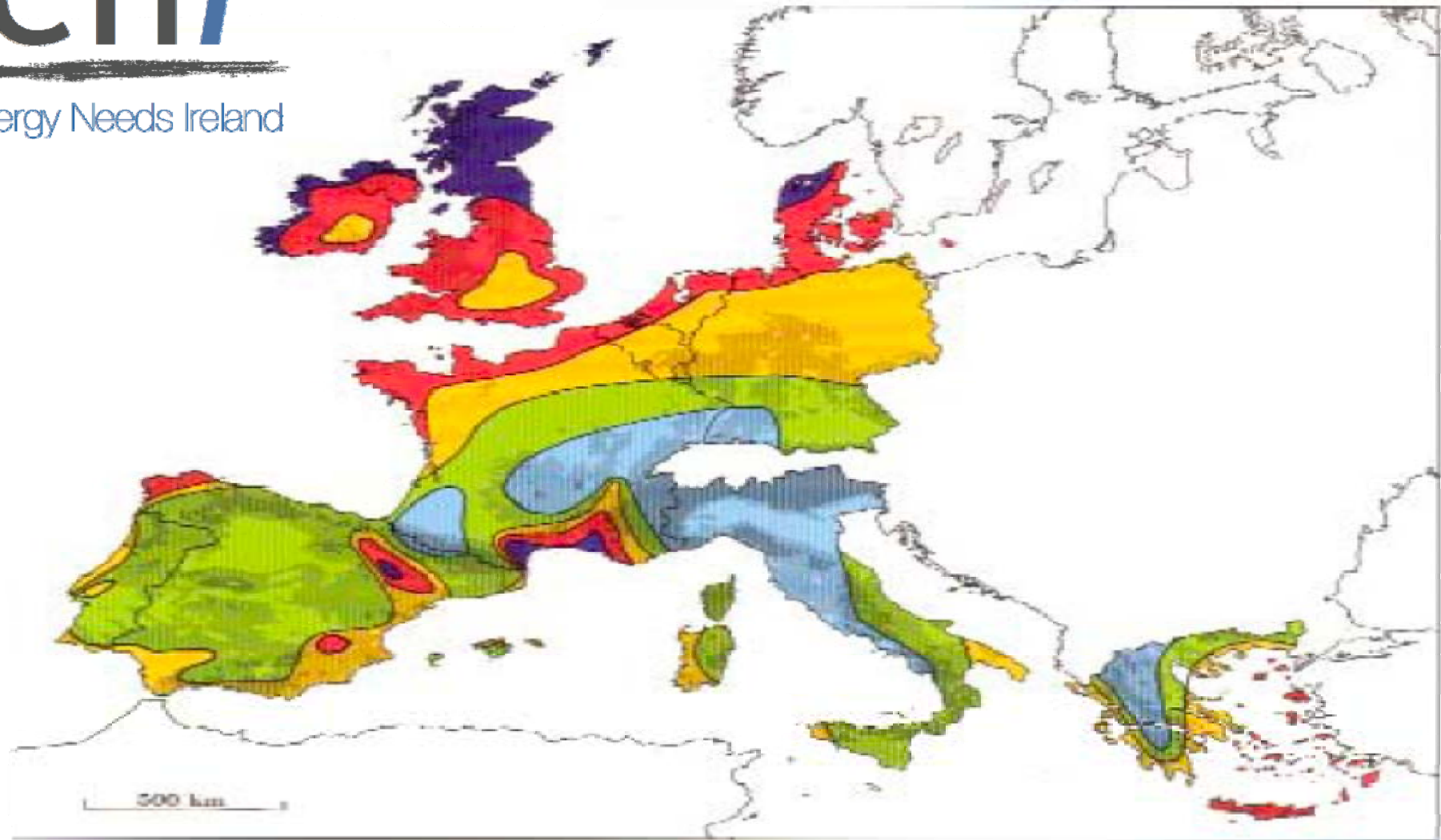
Pros to 40%

- Improves security of supply
 - Reduces CO2 emissions
 - Meets EU targets
 - Stabilise electricity prices
- Complemented by Demand Side Management
 - Exploits huge natural resource (next slide)






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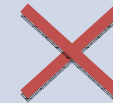
















Huge Natural Resource



Wind resources¹ at 50 metres above ground level for five different topographic conditions

	Sheltered terrain ²		Open plain ³		At a sea coast ⁴		Open sea ⁵		Hills and ridges ⁶	
	ms ⁻¹	Wm ⁻²	ms ⁻¹	Wm ⁻²	ms ⁻¹	Wm ⁻²	ms ⁻¹	Wm ⁻²	ms ⁻¹	Wm ⁻²
	> 6.0	> 250	> 7.5	> 500	> 8.5	> 700	> 9.0	> 800	> 11.5	> 1800
	5.0-6.0	150-250	6.5-7.5	300-500	7.0-8.5	400-700	8.0-9.0	600-800	10.0-11.5	1200-1800
	4.5-5.0	100-150	5.5-6.5	200-300	6.0-7.0	250-400	7.0-8.0	400-600	8.5-10.0	700-1200
	3.5-4.5	50-100	4.5-5.5	100-200	5.0-6.0	150-250	6.5-7.0	200-400	7.0-8.5	400-700
	< 3.5	< 50	< 4.0	< 100	< 5.0	< 150	< 5.5	< 200	< 7.0	< 400

Comparison/Conclusion

Strategy/ Policy	Improves Security of supply	Reduces CO ₂ emissions	Meets EU CO ₂ Targets	Meets EU Renewable Targets	Exploit natural resource	Decreases electricity costs	Longevity
BAU						YES (short term)	Short Term
Nuclear						YES (long term)	Long Term
CCS						-	Medium Term
40% Renewable						YES (long term)	Indefinite

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