

Resilience

A Sustainability Question.

How can Ireland make itself
RESILIENT
to Fluctuations in its Energy Imports



“As a nation, we are at a crucial moment in time, where the right actions will determine our future well being and that of the generations to come. We must act now to address issues such as security of energy supply as a consequence of rapidly declining fossil fuel resources, and of course, the real and present threat of irreversible climate change”

...seai







...of those leaders who refused to acknowledge the clear and present danger: "They go on in strange paradox, decided only to be undecided, resolved to be irresolute, adamant for drift, solid for fluidity, all powerful to be impotent. The era of procrastination, of half-measures, of soothing and baffling expedients, of delays, is coming to a close. In its place, we are entering a period of consequences."

the world is in the grips of an unparalleled
time in history

we in the western hemisphere are rapidly re-
learning that the Earth is not just a resource to
be thorn up for profit

our future existence depends on our ability to
become a Carbon Neutral World

Ireland?



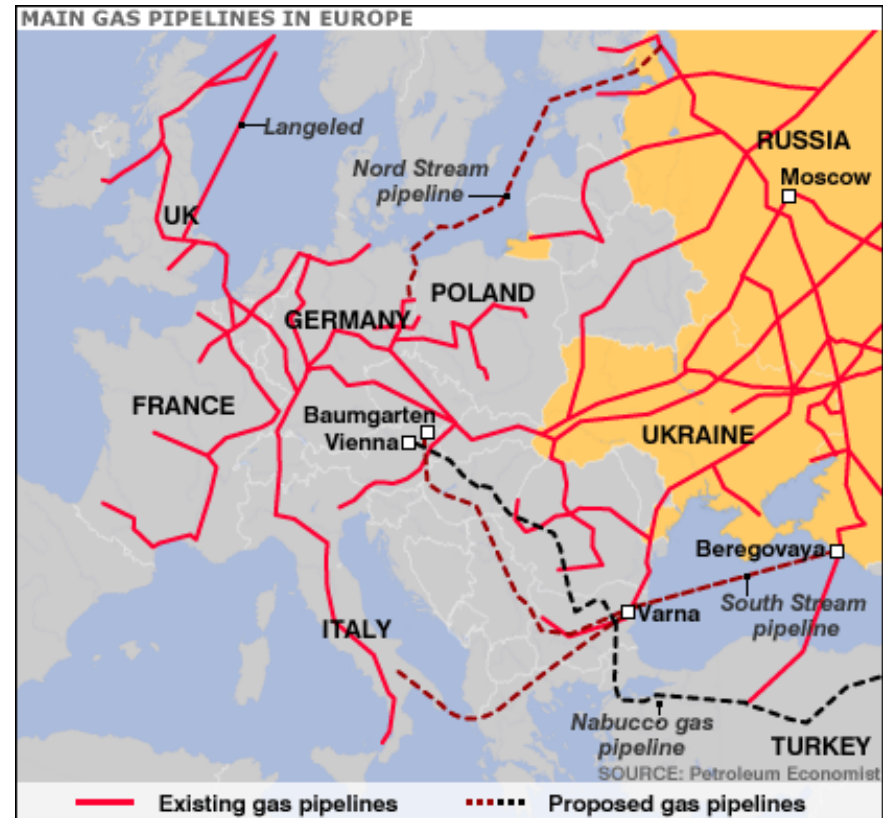
- Shockingly, Ireland has the **4th largest fossil fuel dependency in the EU**, at 96%

and of this, 90% is imported from abroad

- 86.4% of the energy we are using in our every day lives

could be switched off without our control..

- to be left with our **11 day** backup energy. (European average of 60 days)



we are at the end of a very long pipe....

What are the Facts?

The facts that you know

Energy Security Ireland

Ireland's recent period of prosperity led to the country's energy demand and usage surging upwards. Now the boom has evaporated, but the voracious appetite for energy that it spawned remains. These energy demands are being met but, with an extreme reliance on imported fossil fuels, the question is: for how long? **And at what cost, both financially and environmentally?**

Solving the energy security crisis is a complex and difficult challenge that has been building for decades. In recent years, this issue has been recognised and taken on by all responsible governments, including Ireland's. However an analysis of the current facts provides some alarming insights: The facts and figures above illustrate how vulnerable Ireland's position is should there be any interruption to gas flow from the UK. Potential consequences could be mild i.e. shortages in some goods and the localised risk of sewage treatment failure or could be more serious and lead to the cancellation of surgical procedures as hospitals are forced to generate their own power. The issue of energy security must be addressed urgently, because Ireland's energy security is on the edge.

Ireland's Energy Dependency is the reason that we

Need to Diversify and to become a

Low-Carbon Economy, to achieve this we MUST use

Gas as the Bridging Solution

Facts and Figures • **90% of Ireland's energy mix is comprised of three fossil fuels—oil, gas and coal** • Ireland has the 4th highest dependency in European imported fuels • Imported fuels cost Ireland **over €6 billion per annum** • We import all of our oil and coal and over 95% of our gas • 55% of our electricity is generated from that gas • Ireland has just 11 days gas supply storage compared against 92 days in France and 84 days in Germany. We are meant to have 60 days.

Ireland's Energy Dependency From 1990 to 2007, Ireland's energy imports increased by 108%, while since 1995 production of the country's only indigenous fossil fuel supply – gas from the Kinsale Head field – has decreased by 75%. The net effect is that Ireland is now in the unenviable position of having the fourth highest fuel import dependency in Europe – and much of this dependence is ultimately on countries not noted for their political stability. The Need to Diversify Increased energy demands brought about by advancements in transport, industry and commerce since the early nineties have highlighted the severe limitations of our domestic energy production and the strategic importance of diversifying our energy mix. Our reliance on imported fossil fuels is no longer sustainable, due to environmental concerns, increasingly volatile energy prices and declining reserves. Collectively, these factors have put Ireland in a position where the development and deployment of renewable and other domestic sources of energy is no longer desirable but imperative. Low-Carbon Economy – Renewables are the future. A low-carbon economy is the long-term solution to the twin threats of climate change and security of energy supply. The development of a low-carbon economy means the implementation of government policies that reduce Ireland's greenhouse gas emissions, by replacing fossil fuel-based products and services with low-carbon alternatives. Ultimately, this will mean the development of a strong and robust renewable energy industry in Ireland, – along with a major shift in public attitudes to energy usage. Gas as the Bridging Solution. While Ireland's low-carbon vision is being developed and implemented, an interim solution is required to bridge the gap to renewables and ensure our energy supply is secure in the meantime. From an environmental perspective, natural gas is the obvious bridging solution. Of the fossil fuels available, natural gas is the cleanest: burning natural gas produces 43% less CO₂ per kWh than coal and 28% less than fuel oil. In addition, oil and coal have higher nitrogen and sulphur contents and release ash into the atmosphere when burned. Figure 4.1 Carbon intensity of different fuels in generating electricity (Source: UK Department of Transport, 'Carbon and Sustainability Reporting within the renewable transport Fuel Obligation' The recently introduced carbon tax also makes gas an attractive option from a financial standpoint, due to its lower carbon intensity. And, most critically of all, gas offers the only opportunity of a 15- to 20-year indigenous fuel supply, capable of meeting 17% of Ireland's total energy needs at peak production and 60% of the country's gas needs. This opportunity lies in Corrib Natural Gas, which is due to come on stream later this year or early next year. With gas now accounting for almost 55% of Ireland's electricity generation, the need for the security that an indigenous supply could offer has never been greater.

[Based on the Report from the Ecology Foundation](#)

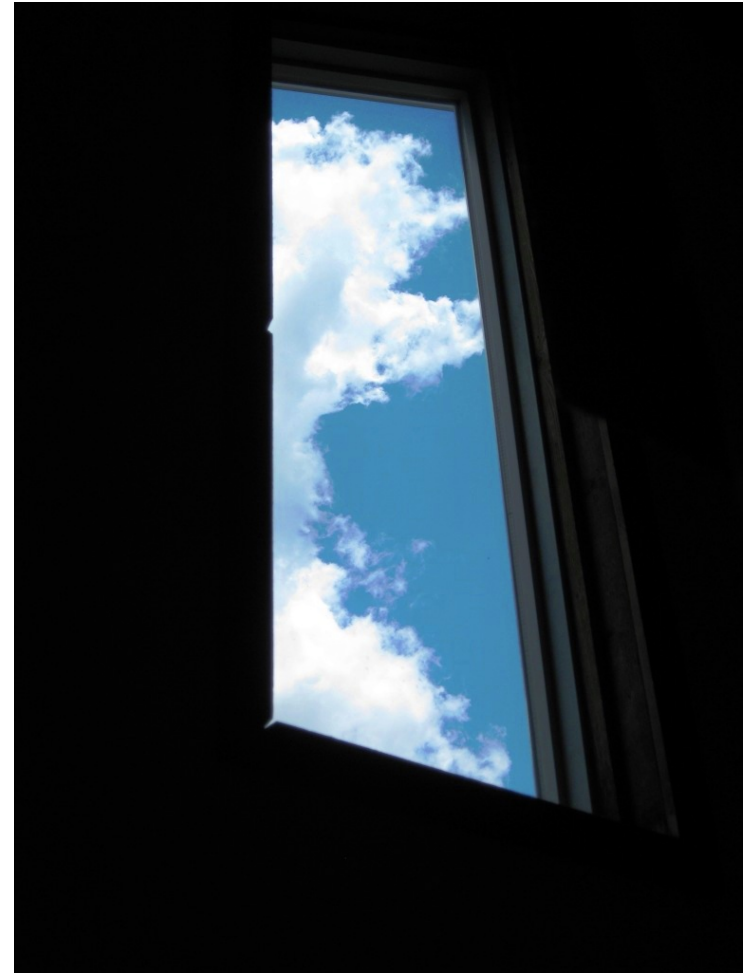
In Summary

We spend **€6 billion** a year on our
Energy Imports

We are completely reliant on
these imports now.

We **NEED** to diversify, become
Energy Independent
We **need Renewables**.

We can use Corrib Gas field as the
window of opportunity to
achieve this.



So, lets say we DO grab this opportunity

What would we do with it?



How will we use this lifeline to gauruntee our future energy requirements. What infrastructure is necessary to achieve this and what do we need to build now, while we have time and the resources?

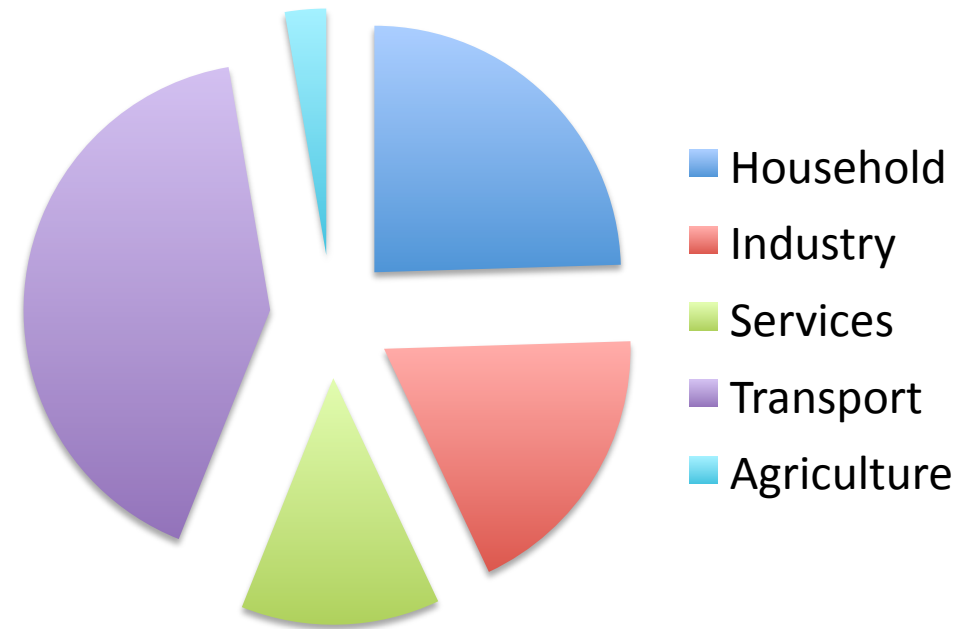
Well,

we know where our Energy is
coming from

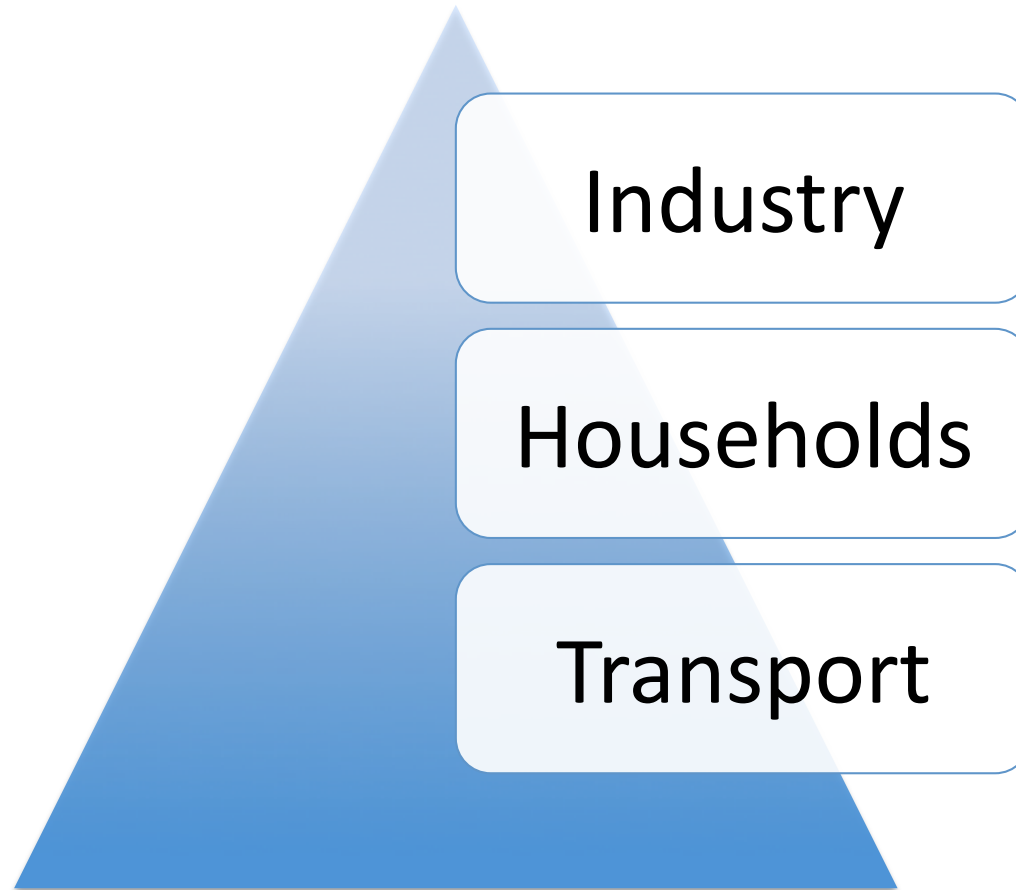
we need to know where it
is going

Energy Usage (ktoe)

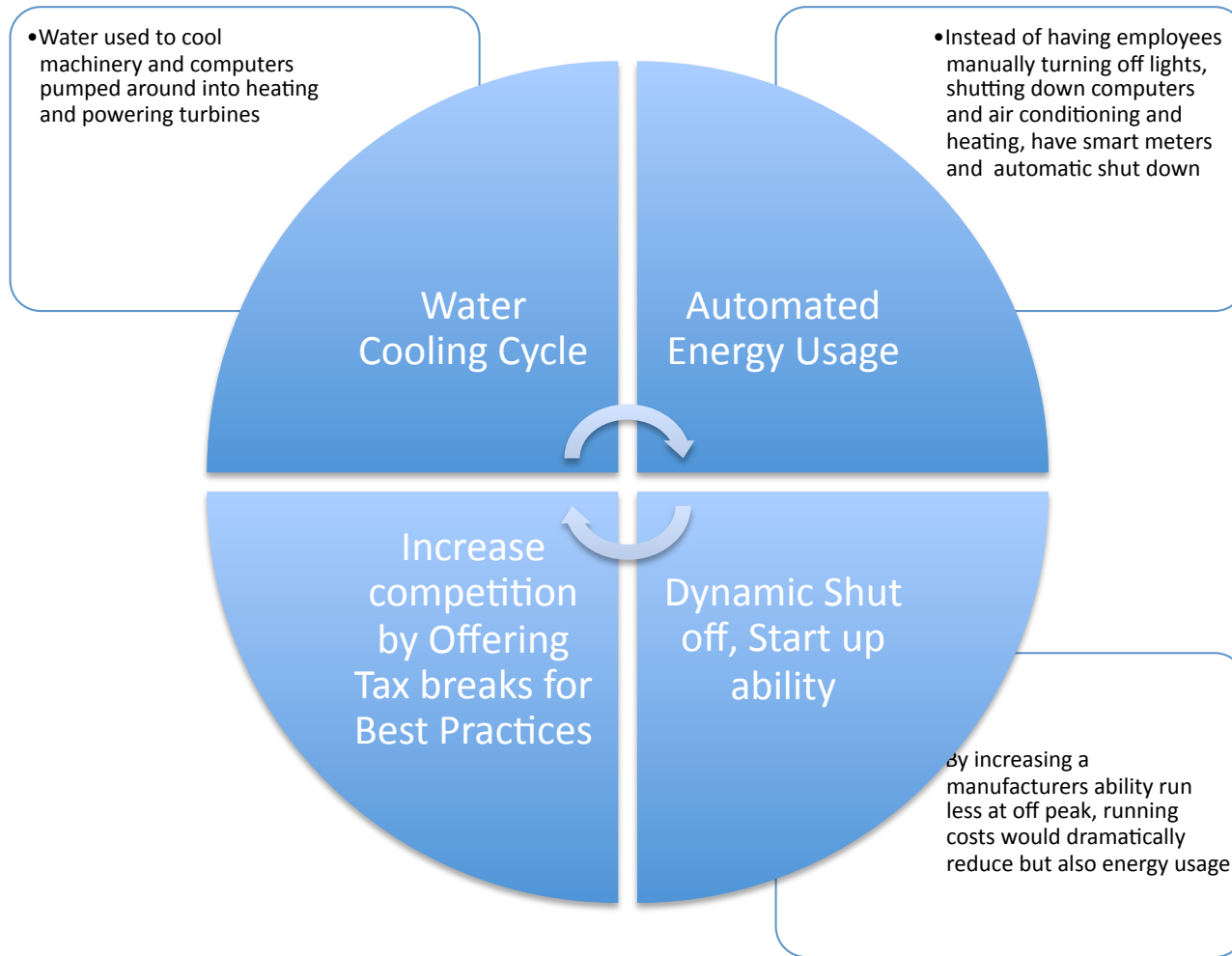
- Household 3112
- Industry 2348
- Services 1656
- Agriculture 343
- Transport 5237
- Total 12697



I Will Discuss Resolutions for 3 Areas

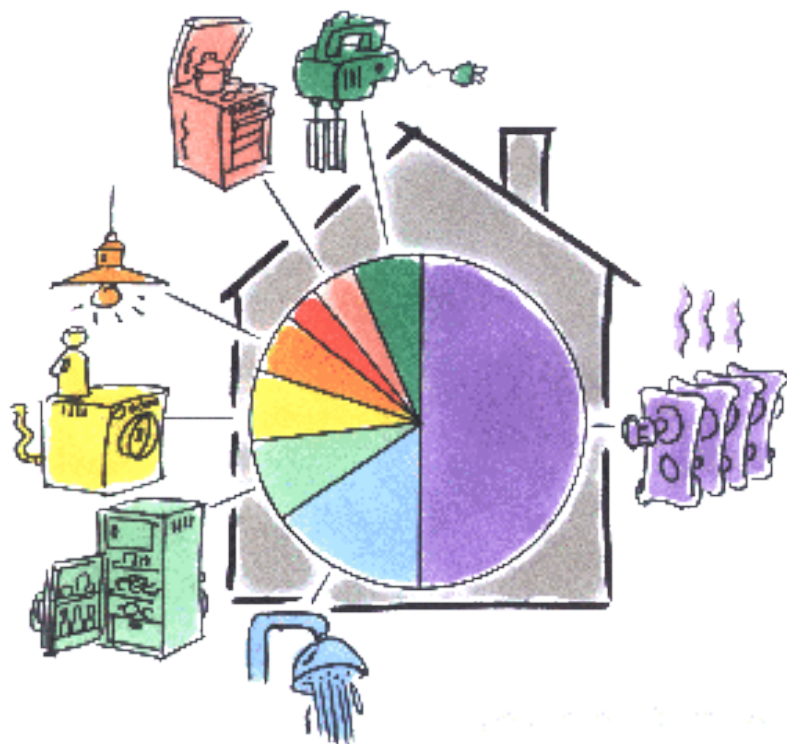


Industry



Households

- The Energy Usage in a typical Irish house is



space heating takes up >50% of the overall energy use.

Therefore, proper insulation and ventilation is the first and most important energy saving measure. It can reduce heating needs to 1/3rd (about 50 kWh heat/m²/y) or even 1/10th (less than 15 kWh heat/m²/y) of what an average house would need. Remarkably, a properly insulated house, which only needs a third of the heat to keep you warm, will not be more expensive to build. The extra investments in insulation, ventilation and high-efficiency glazing, can be offset by a smaller and cheaper heating system. An efficient house will also be healthier and more comfortable to live in - it avoids 'cold radiation' (as from windows), the differences of temperature between heated and non-heated rooms is less, and it can be more efficiently ventilated.

TRANSPORT

- Transport is the number 1 biggest energy consumer.
- It is dirty, inefficient and therefore has huge potential for improvement, as Stephen Marsden has summed up very concisely [here](#)
- But in essence, electric cars are the present and future.



Chevy Volt

The upcoming Chevrolet Volt 230 will be the chart topper as it is said to give you 97.4km per litre in the city. This number can be played with due to the interaction of the electric and gas portion of the car. For the first 64 km of the charge, the car will run completely on electricity, after that, the gas power kicks in more and more as the mileage ticks off. If you drive less than forty miles a day, this car could definitely be your new best friend.

Finally

- Ireland is frighteningly dependant for our Energy supply
- BUT
- We have
 - Window of Opportunity
 - Technology
 - Creativity
- Ireland has a once off opportunity to become a world leader in the green energy sector.

The window is closing, will we do what is necessary to save our future?

