Smart Grid Roadmap
Foreseeing Problems / Barriers

Joe Durkan SEAI
September 13th, 2012

Basic process

Roadmap Development

IEA – Guide to Roadmap Development

- Goals – set clear and concise set of targets
- Milestones – specific dates for interim performance targets
- Identify Gaps and Barriers
- Action items – to overcome gaps and barriers
- Priorities and timelines.

In other words....

Where do we want to go?

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What are the potholes?

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Roadmap – proposed destination

Focus to be on the CO_2 reductions enabled by the "smartening" of the grid

Smart grids will:

- guarantee security of supply

by:

- enabling large amounts of renewable wind electricity and distributed generation onto the system

by:

- allowing demand response, load shifting and reduction, storage, imports / export of electricity

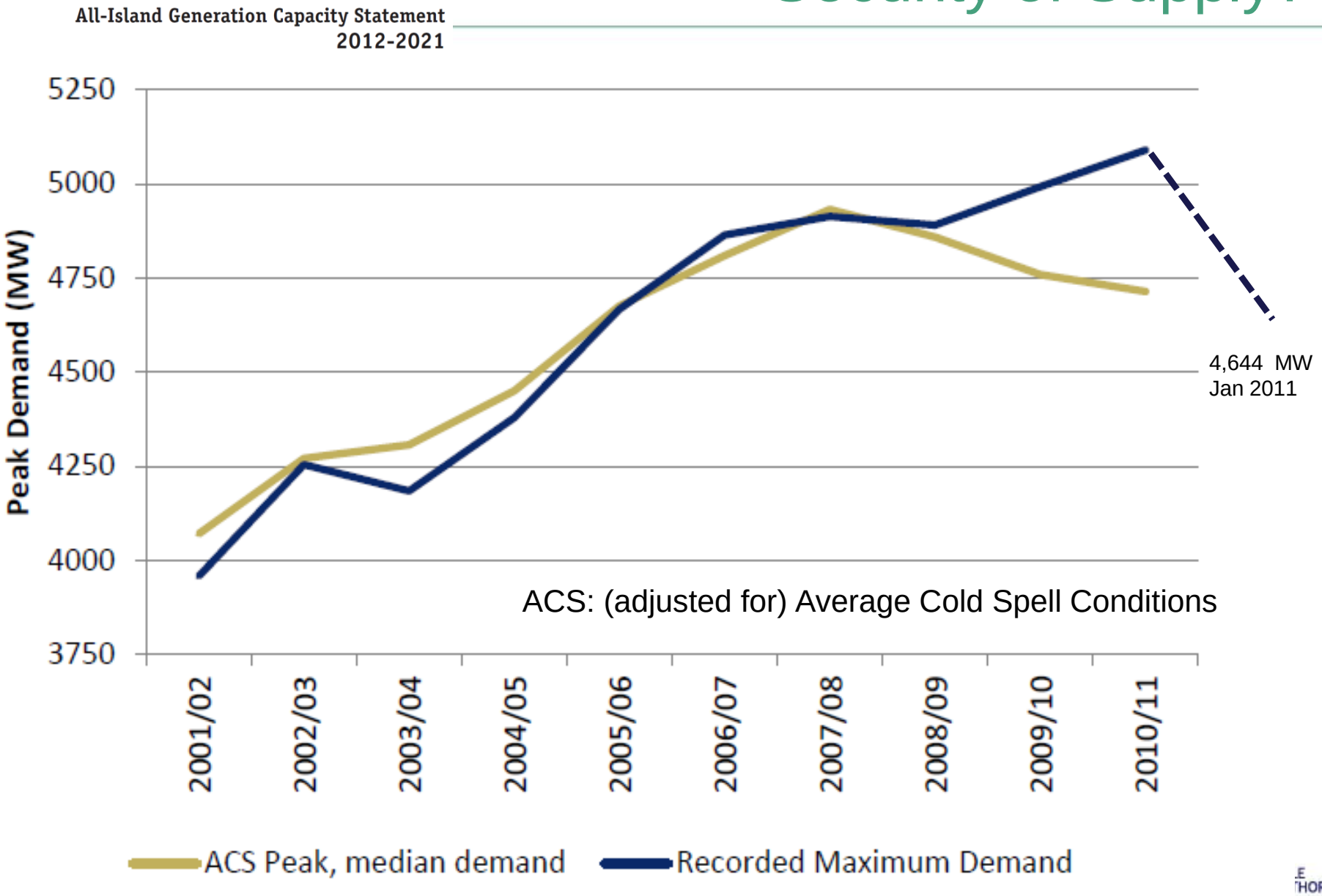
and in so doing

- will reduce the CO_2 content of electricity to almost zero (thereby helping Ireland meet it's ambitious targets)

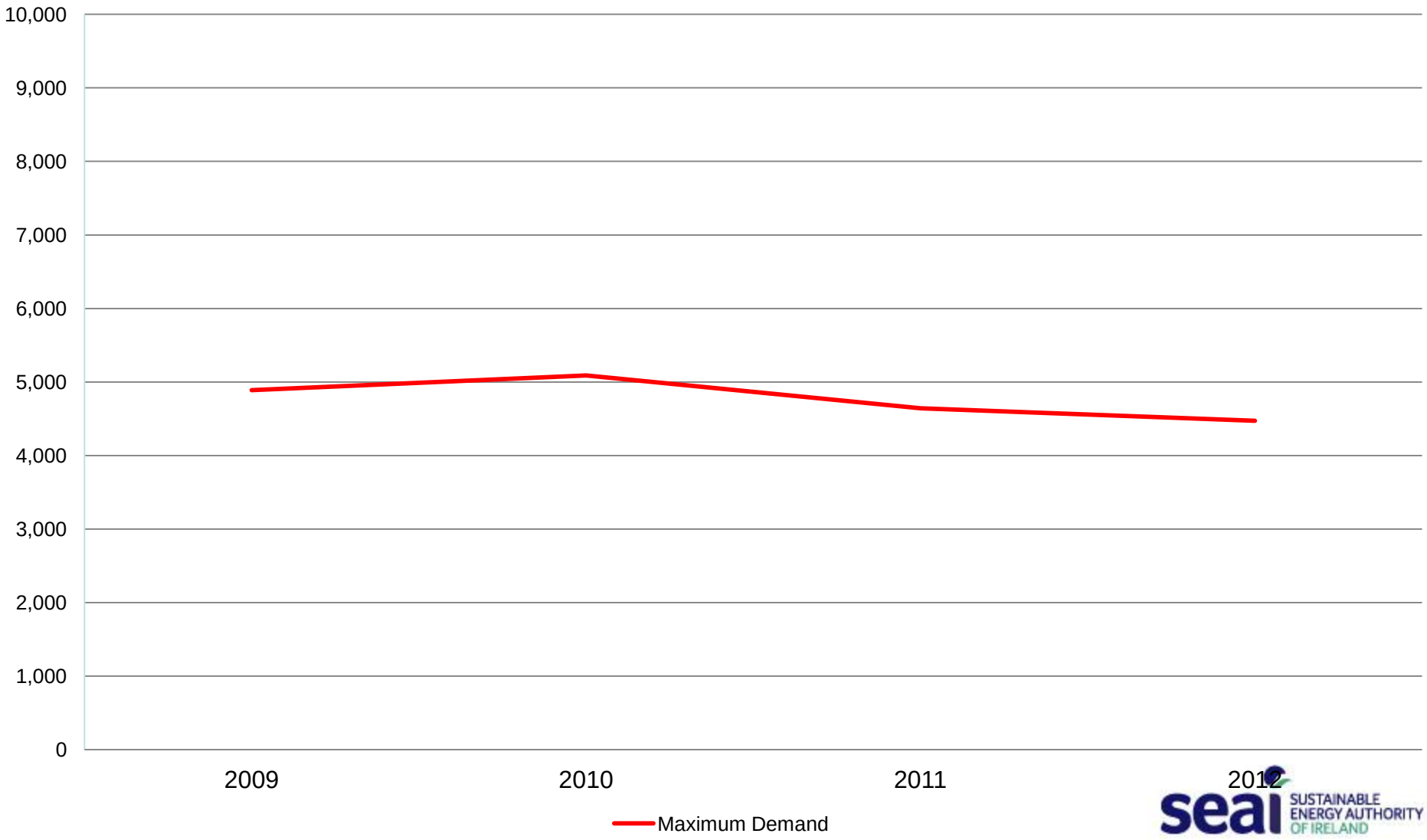
Problem:

Short term vision vs. Long term planning

Security of Supply?



Demand vs Supply (MW)



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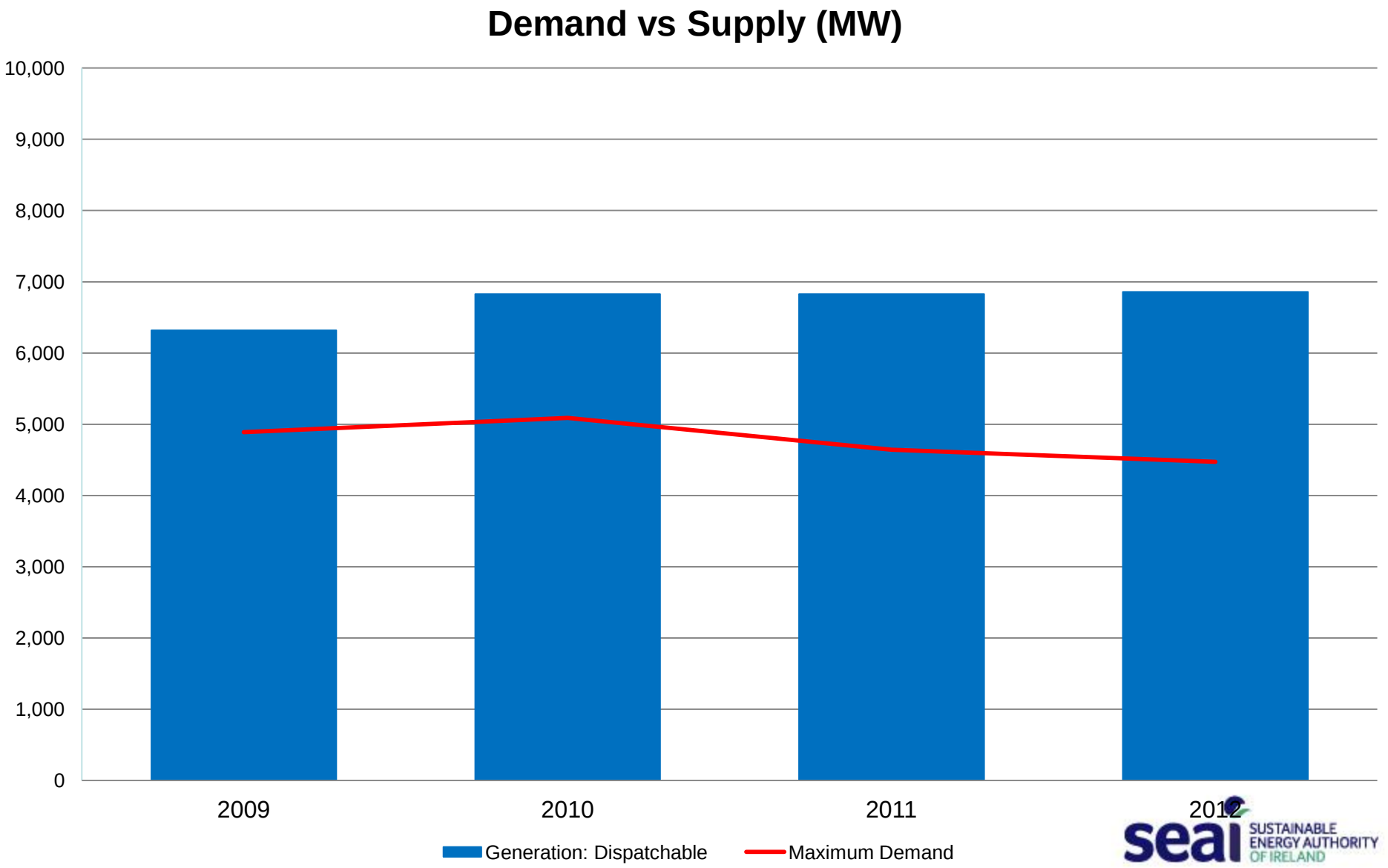
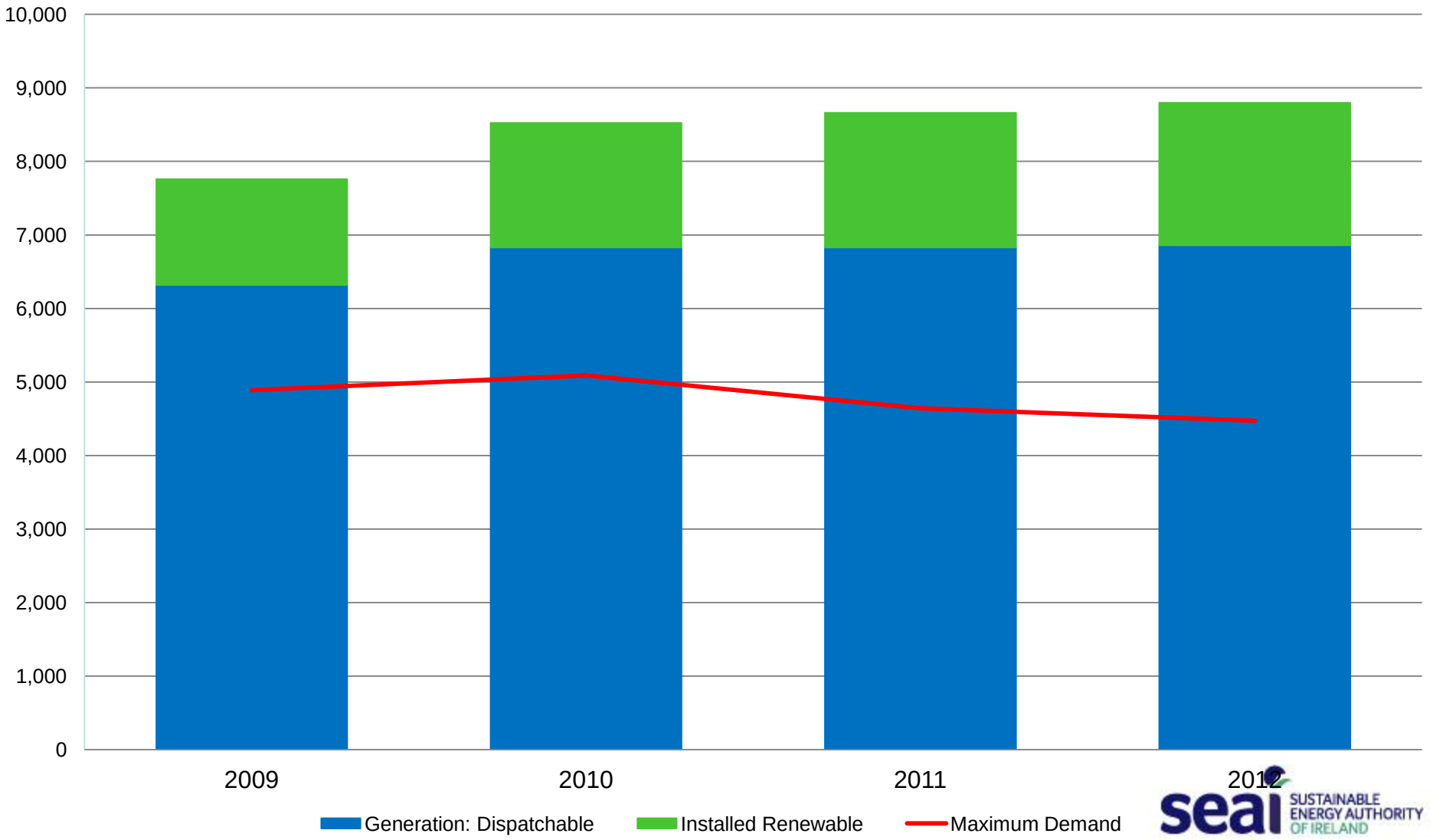

Demand vs Supply (MW)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2009
2010
2011
2012
Generation: Dispatchable
Maximum Demand

Demand vs Supply (MW)



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IRISH TIMES

Tuesday, September 11, 2012 €1.90 (incl. VAT) £1.25 Northern Ireland.

Cork

Eirgrid says 40km overhead power line will provide security of supply

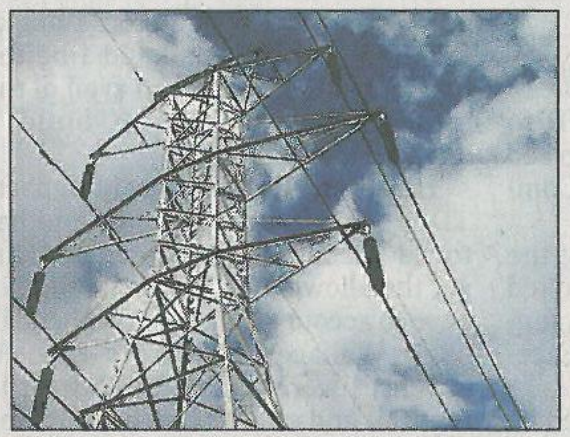
A proposal by Eirgrid to run a 110kV overhead power line across a 40km stretch of Co Cork will provide security of supply and assist in exporting renewable energy, an oral hearing into the development heard yesterday.

However, the project is proving contentious in the southwest. A written submission by the group Communities Before Pylons queries the need for the proposed Clashavoon-Dunmanway 110kV. The group claims that due to the economic downturn, there has been a significant reduction in the demand for electricity.

Individual objectors also claim that Eirgrid has exaggerated the projected energy demand.

Eirgrid outlined its case for the development on the first day of a three- or four-day oral hearing at the Castle Hotel in Macroom yesterday.

Transmission projects manager Brian Mullins told the hearing that the development would assist the Government in reaching its target of 40 per cent renewable energy generation by 2020 while ensuring that the region met the standards required of a safe and secure electricity system.



Objectors to overhead pylons claim a significant decline in electricity demand

Mr Mullins stressed that the development would increase the security and reliability of electricity supply to businesses, households and farms.

OLIVIA KELLEHER

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What to do?

3 steps to Pre-emptive Resolution

- Ensure good representivity
- Rephrase the question
- Quantify benefits

Representivity

Roadmap – Steering Group

Industry consultation

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Industry consultation

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Alternative routing

From....

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....to

Focus to be on reducing the CO_2 content of electricity to almost zero (helping Ireland meet it's ambitious targets)

Smart grids will:

- Reduce dependency on foreign fuel imports

by:

- enabling large amounts of renewable wind electricity and distributed generation onto the system

and in so doing

- save large amounts of money!

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Show me the money...

Key Result

By 2050, the Road Map scenario showed:

- Decarbonisation of electricity in the Irish system
- Reduction in energy imports in excess of 4.3 Mtoe

Monetary Savings (offset imports)**:**

$/Barrel Oil	$111	$179	$247
Savings (Billions)	**€2.35**	**€3.79**	**€5.23**

Requirments:

- Increase electrification of thermal loads in the residential, services and transport sectors
- Grow Final Electrical energy demand >48,000 GWh
  - 88% renewable, 33,000 GWh on-shore wind

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Requires:

- Increase electrification of thermal loads in the residential, services and transport sectors
- Grow Final Electrical energy demand >48,000 GWh
  - 88% renewable, 33,000 GWh on-shore wind

- How do we enable and deliver this?

Create a Roadmap

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