



Wind Generator Perspective

Dave O'Connor, Irish Wind Energy Association

EirGrid Workshop: *The Developing Generation Mix*

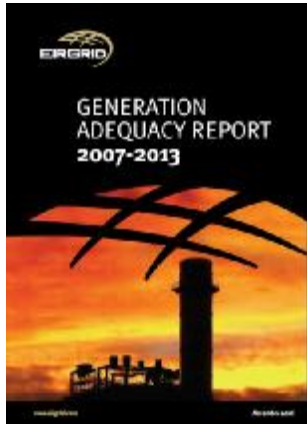
4th October 2007

Outline of Presentation

- Review of the year
- Pace of growth
- Issues
- Recommendations
- Conclusions

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Generation Adequacy Report

[T]he working assumption for this report is that a linear increase in [Wind Power Generation] capacity of 250 MW per annum occurs between 2007 and 2013 ...



Government White Paper

We will achieve 15% of electricity consumption on a national basis from renewable energy sources by 2010 and 33% by 2020 ...

... conventional plant with operational flexibility which can support and complement the significant growth in intermittent wind powered generation ...



EirGrid's Policy on Renewables

EirGrid intends to be a world leader in the facilitation of renewables ... ensure a fair, transparent and proactive approach towards the integration of all forms of renewable energy on the national power system.

An Agreed
Programme for
Government

June 2007

Programme for Government

We will:

- dramatically accelerate the growth of renewable energy sources ...
- ensure that the new all-island energy market is designed to ensure the maximum use of renewable energy in the system ...

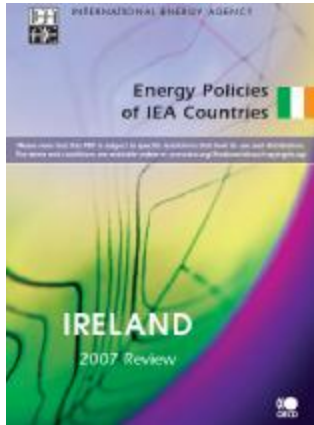
[W]e commit ourselves to a Green Energy Revolution.



Minister Ryan's address to the Forum on Innovation and Employment in Energy

The recent Energy White Paper and Programme for Government have set ambitious but achievable targets for the Irish energy sector ...

These targets should be viewed as the start of our ambitions rather than their limits



IEA Review of Irish Energy Policy

One of The Three Key Recommendations:

The Government of Ireland should focus on the development of grid integration solutions for renewables ...



Energy Needs Ireland report launched last week by Minister Ryan

To achieve 30% of electricity production by wind in 2020, we will need somewhere between 4,000 and 5,000 MW of wind installed

eni is of the opinion that beyond 2020 it should be possible to economically achieve wind penetration levels significantly above 30%.



Dermot Byrne addressing the IWEA Conference last week

33% renewables penetration by 2020 equates to ~ 4,300 MW of wind.

EirGrid's Grid Development Strategy will consider up to 40% renewables penetration by 2025.



Minister Ryan addressing the IWEA Conference last week

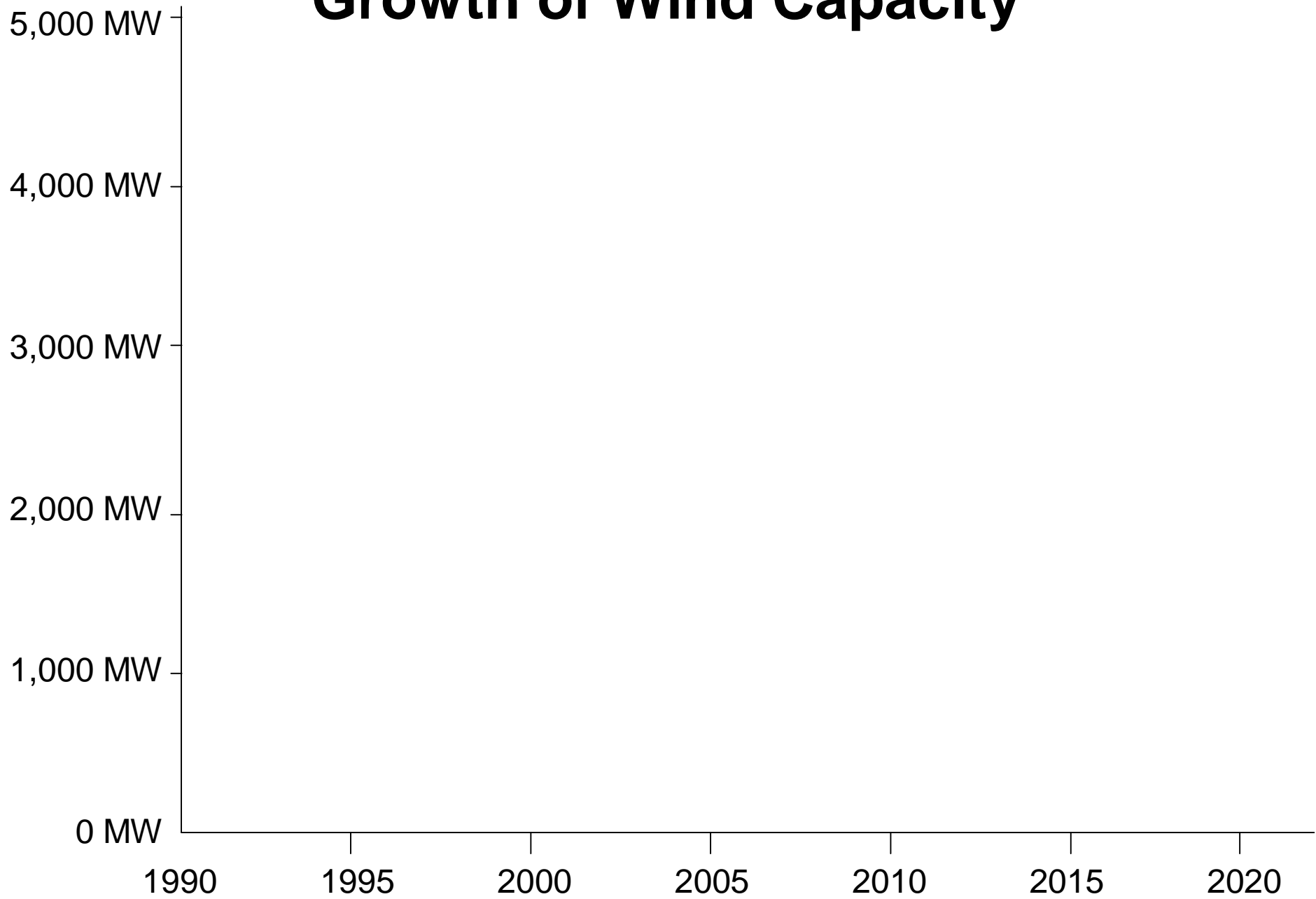
The targets have been set as a base, not a ceiling ...

We must make sure that we don't create any unintended blockages or disincentives to renewables developments.

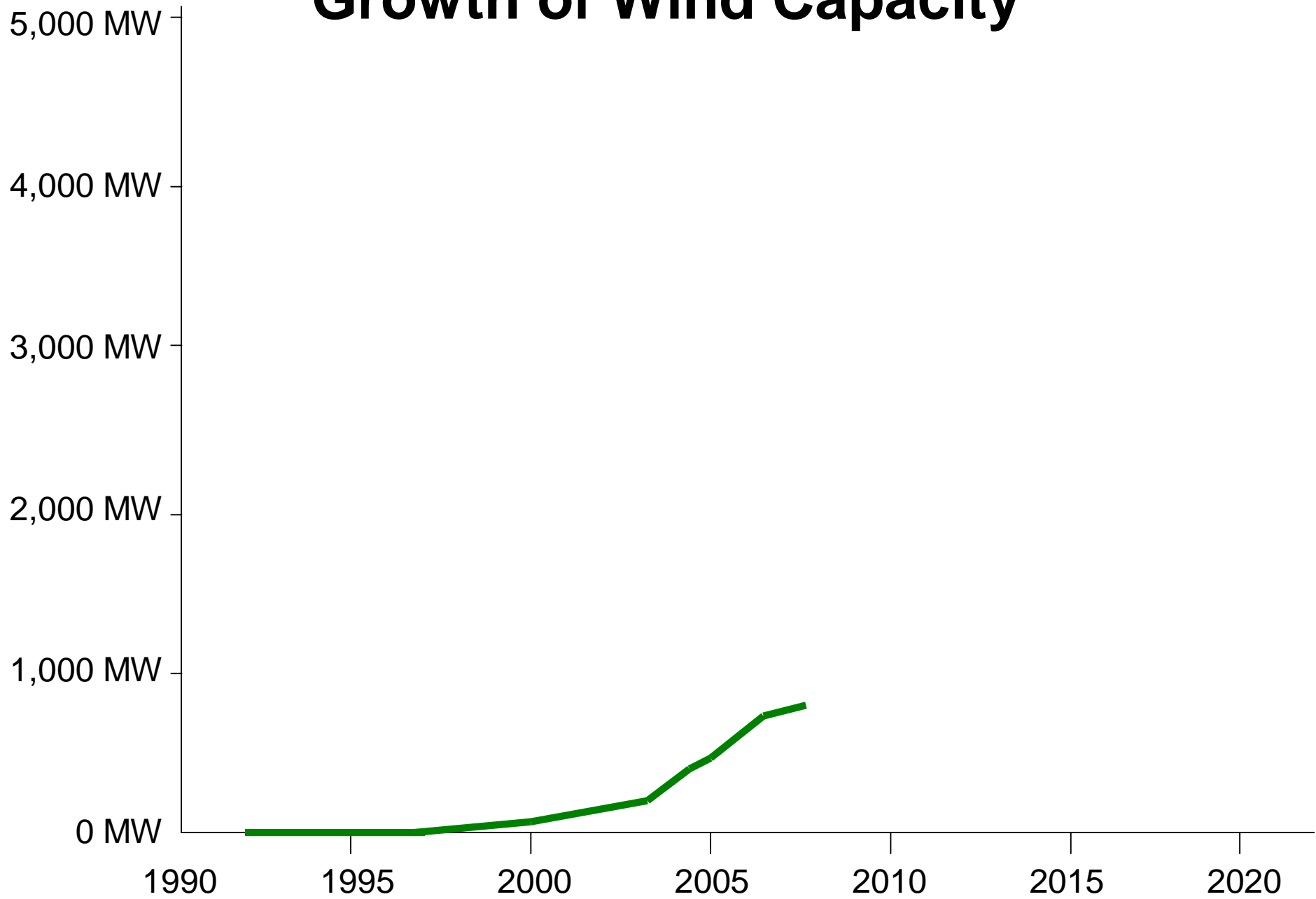
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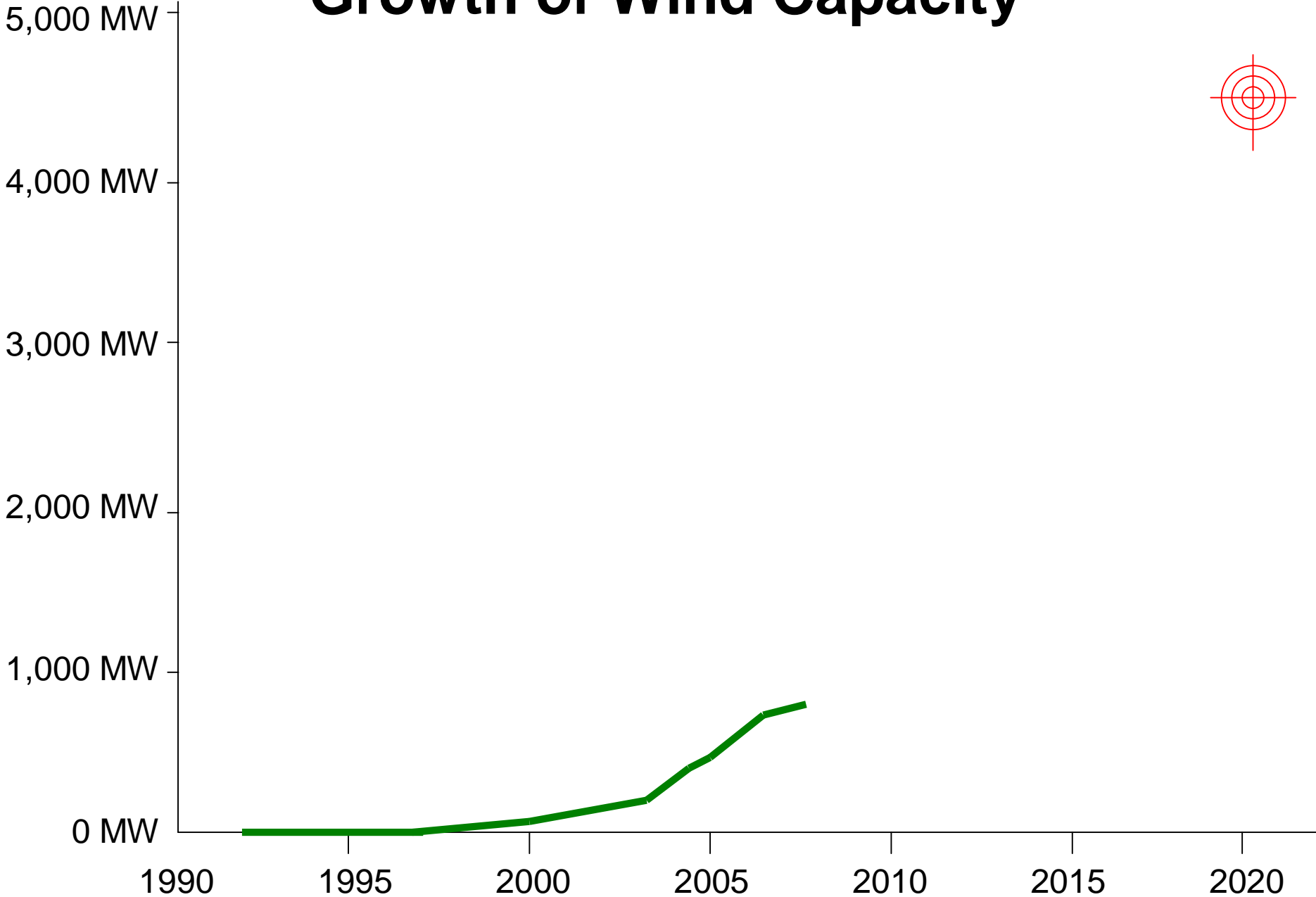
Growth of Wind Capacity



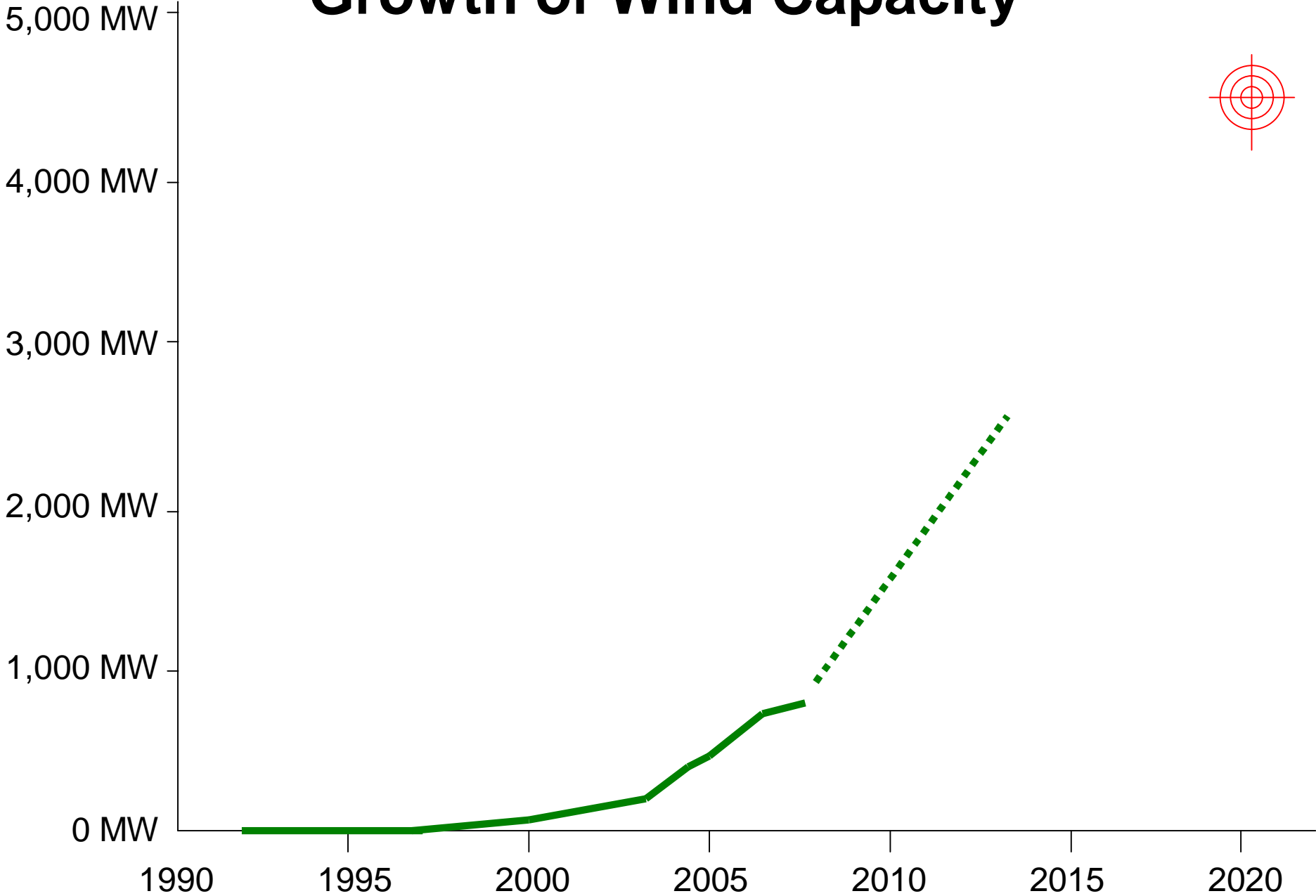
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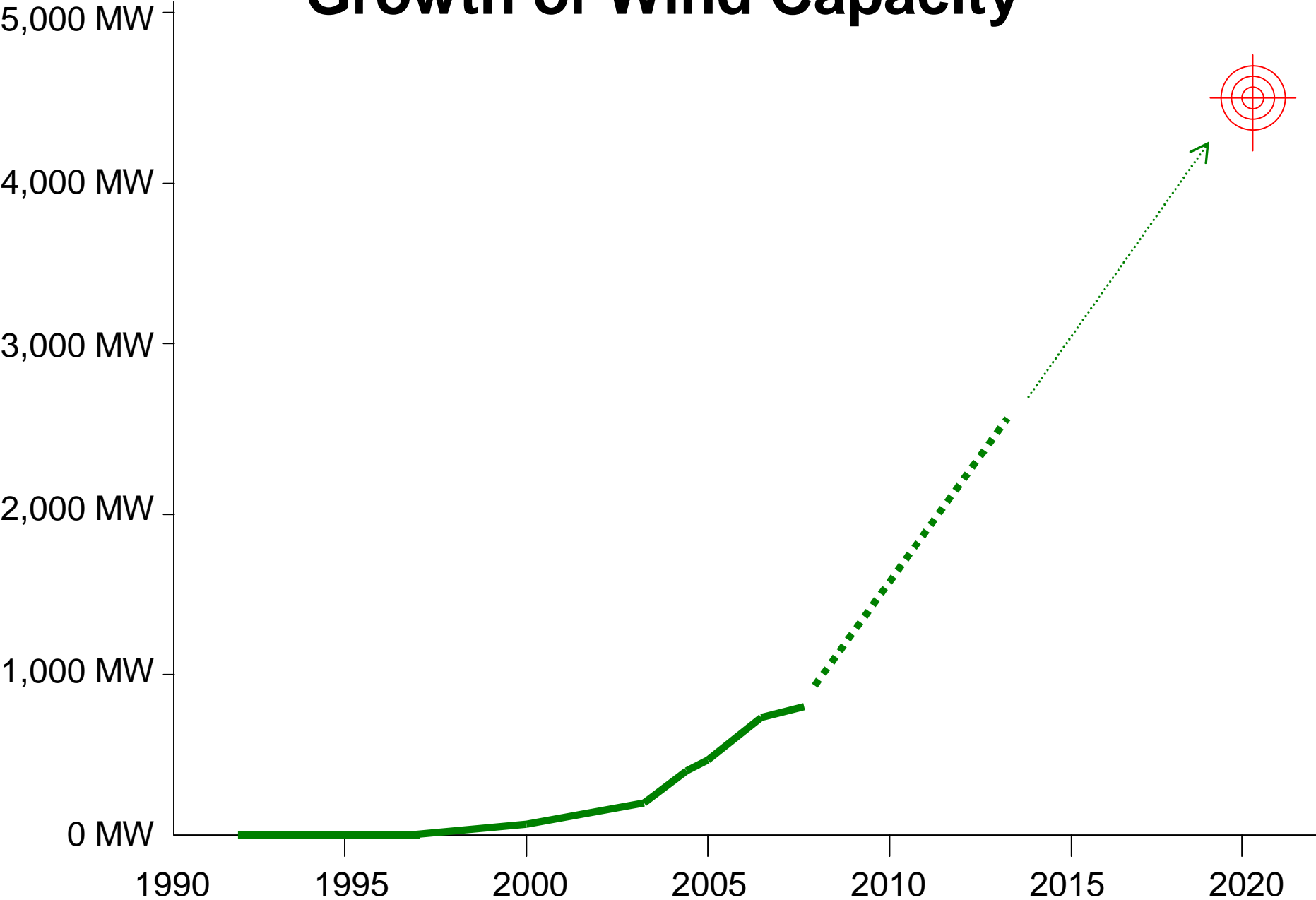
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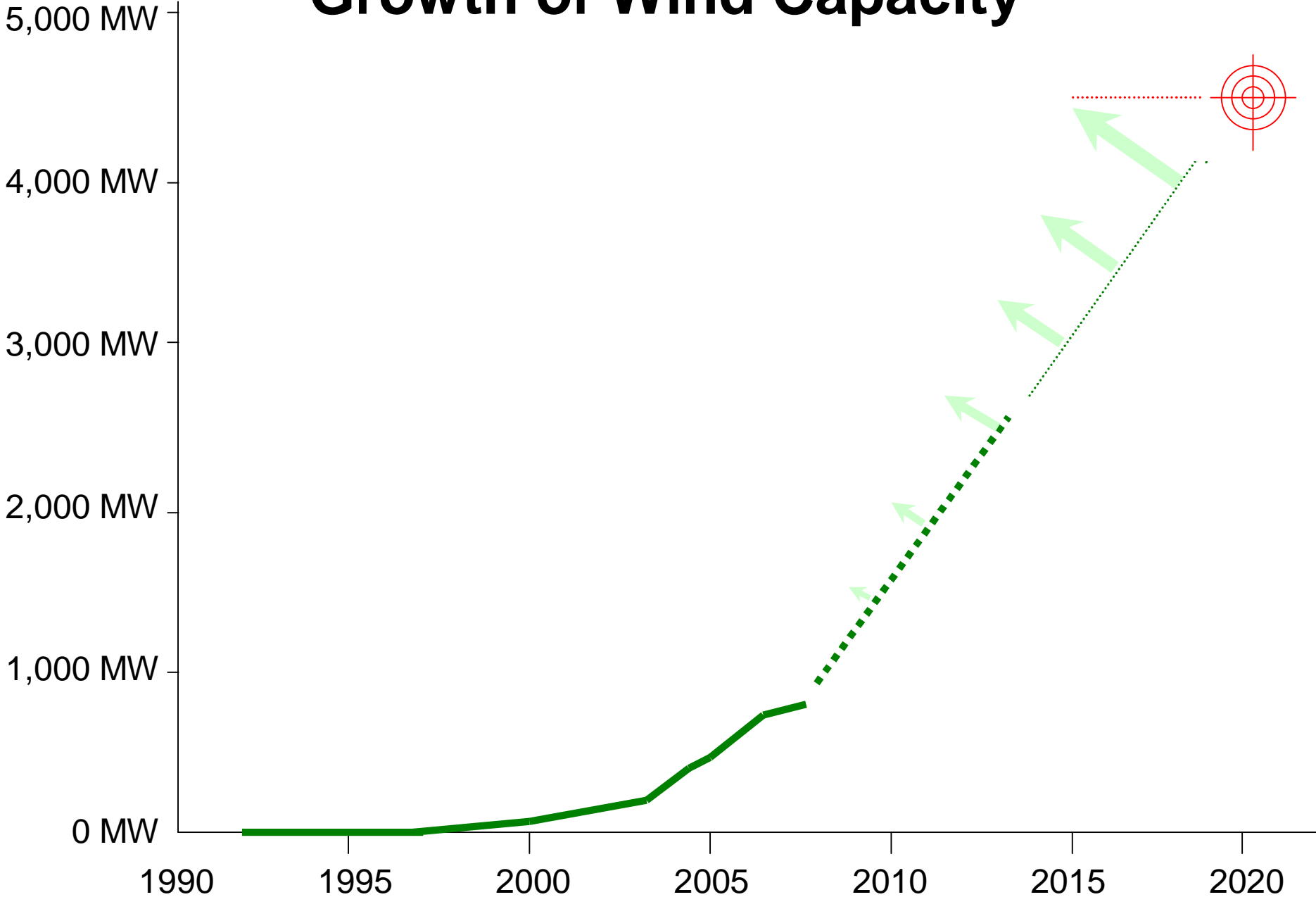
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Growth of Wind Capacity



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Issues

- Additions to the brown generation mix continue to make it progressively **less** complementary to wind generation
- Performance characteristics of the existing brown generation mix wrt Flexibility and Responsiveness fall **far** short of complementing wind generation
- Wind generators are already threatened with curtailment of their output – without compensation – which is due **solely** to the uncomplementary nature of the brown generation mix.

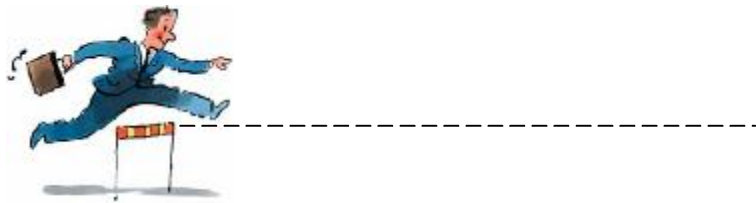
Grid Code Requirements and Compliance

Grid Code Requirements and Compliance

Wind Generators

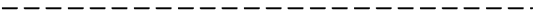
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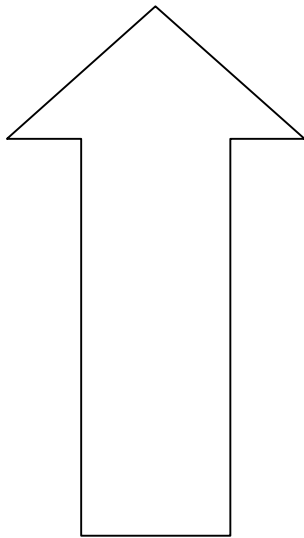
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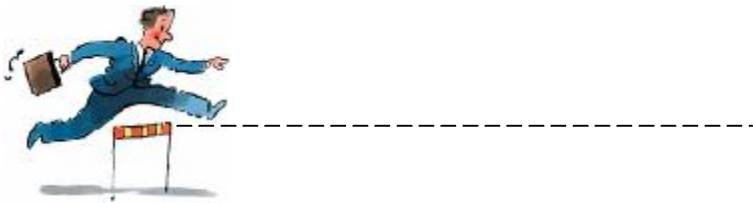


Grid Code Requirements and Compliance

Wind Generators



**Compliant
since
2004**



Grid Code for Wind

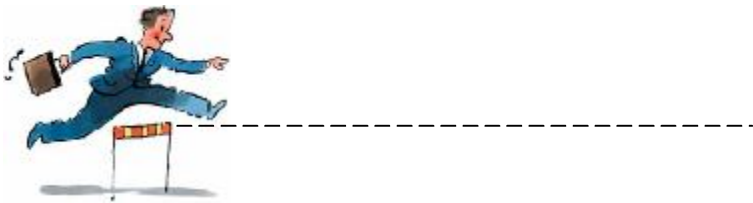
- set radical new standard in best international practice
- imposed under duress of moratorium
- applied retrospectively
- zealously enforced
- comply or be shut down
- **extra** cost incurred by developers to date ~ €100,000,000

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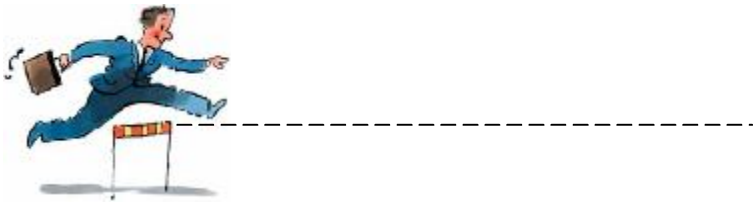
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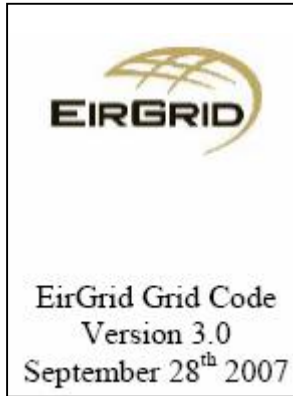
Wind Generators

Brown Generators wrt
Flexibility and Responsiveness



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The Grid Code

Flexibility and Responsiveness requirements of generators:

Subclauses CC.7.3.1.1(k) to CC.7.3.1.1(u)(iv) inclusive

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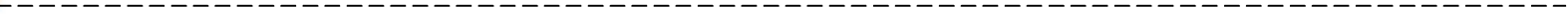
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Compliant

**Derogations
granted**

Derogations from Grid Code Granted to Brown Generators wrt Flexibility and Responsiveness

- 24 were in place this time last year
- 39 now

Impenetrable veil of secrecy around:

- the nature of each derogation
- its extent
- the actual generator to which it applies
- the case that was made for it to be granted
- the justification for the decision to grant it.

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**Derogations
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**Non-Compliant
WITHOUT
Derogation!**

Non-compliances NOT covered by derogation

- never suspected that there might be any
- regulatory authorities published generators' self-declared data
- our examination of that led to identification of 80 instances
- that's just in respect of flexibility and responsiveness
- gross non-compliance in numerous instances
- several revisions since published are even more non-compliant.

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1

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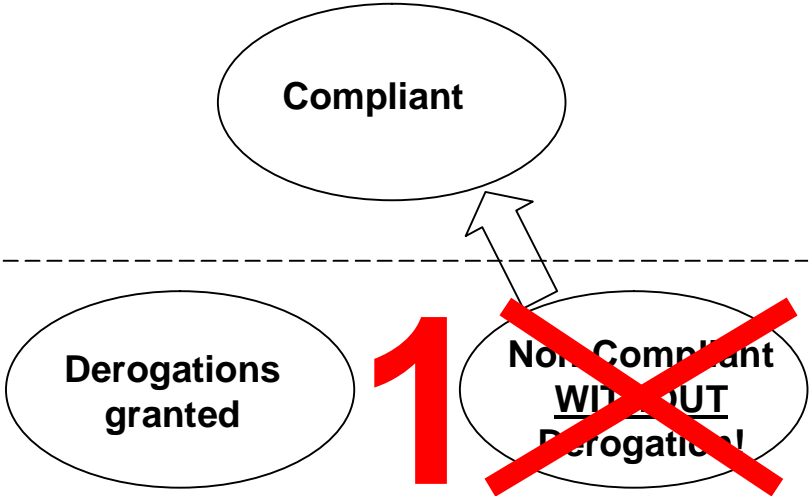
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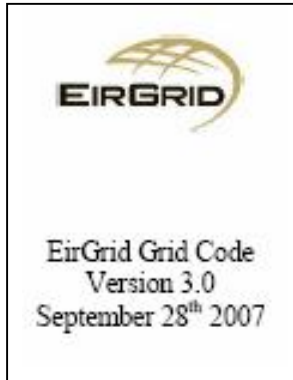


Compliant
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Compliant

2 ~~Delegations
granted~~



Clause GC.9.9 of The Grid Code

Where a material change in circumstance has occurred a review of any existing derogations, and any derogations under consideration, may be initiated by the Commission ...

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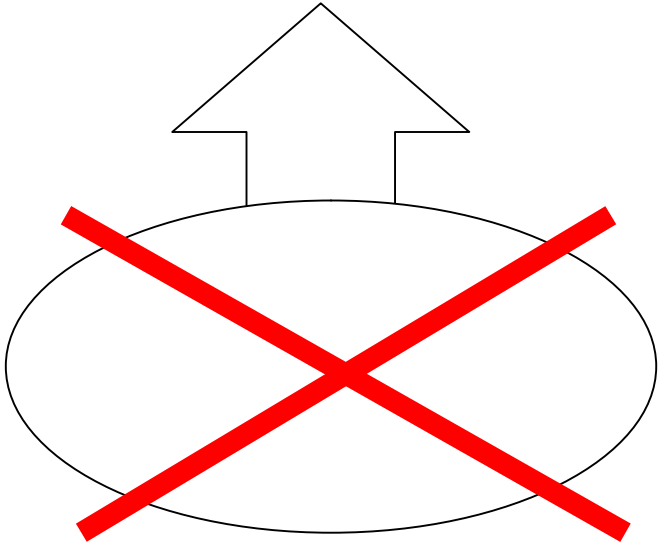
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Commissioner Reeves' testimony to Joint Oireachtas Committee on 28th January 2004

Ultimately there will be a central Grid Code with chapters for gas-fired stations, coal stations and all the rest ...

There will be specific requirements for each one of those.

<http://debates.oireachtas.ie/DDebate.aspx?F=AGJ20040128.xml&Ex=All&Page=3>

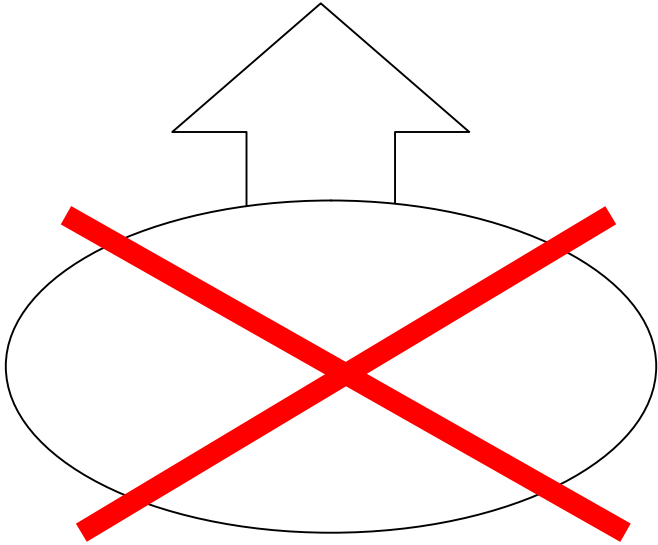
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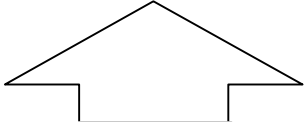
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Competing to Excel





Consultation paper of 6 weeks ago

At present, there are a large number of generator performance derogations in Ireland ... there are not enough incentives to perform as required by the Grid Code in Ireland

... Generators must comply or be removed from the system. The threat of disconnection from the system is too severe ...

Alternative incentive mechanisms are required to encourage improved Grid Code performance and remove deliberate excursions from the Grid Code.

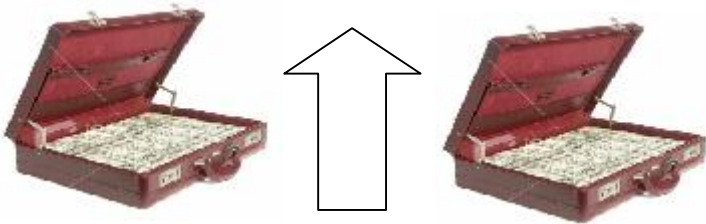
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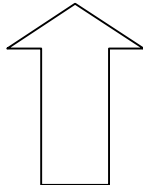
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Number 23 of 1999

ELECTRICITY REGULATION ACT, 1999



Number 13 of 1999

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... a manner which ... does not
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CER

Commission for Energy Regulation
An Coimisiún um Rialáil Fuinnimh

TRANSMISSION SYSTEM OPERATOR LICENCE

GRANTED TO

EIRGRID

... not discriminate unfairly between
... classes of system users



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... an impartial, non-discriminatory, open and transparent manner

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- None of the issues identified is of our making
- Responsibility for resolving them lies with others
- They impact generally on all customers
- They impact specifically and immediately on us, in that because of them we're threatened with having our output curtailed without compensation
- Furthermore, any failure to deliver the optimum generation mix will unfairly depress the value of our product in the pool market
- If the immediate threat is lifted and trust is restored we will cooperate fully in the quest for a fair resolution.

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<http://www.eirgrid.com/EirgridPortal/uploads/Customer%20Relations/Generation%20Mix%20Wind%20Generator%20Perspectiv-Dave%20O%20Connor%20IWEA.pdf>



www.iwea.com