



An Roinn Cumarsáide,  
Fuinnimh agus Acmhainní Nádurtha  
Baile Átha Cliath 2.

Department of Communications  
Energy and Natural Resources,  
Dublin 2.

Karsten Burges  
Manager – Power Systems and Markets  
Ecofys Germany GmbH  
Stralauer Platz 34  
D – 102343 Berlin

09 April 2008

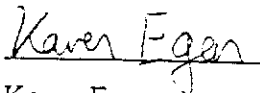
**Consultancy Agreement**

Dear Karsten,

Please find enclosed your copy of the signed consultancy agreement.

Please note that Appendix IV has been replaced with an unsigned version as it only needs to be signed if we have cause to change the contract in some way.

Yours sincerely,



Karen Egan

EirGrid (Corporate) Division,

**Karen Egan**

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**From:** Katherine Licken  
**Sent:** 04 April 2008 15:19  
**To:** Karen Egan  
**Cc:** [REDACTED]  
**Subject:** [REDACTED]

Karen,

[REDACTED] a voicemail on my phone this PM. It seems he didn't have the 10am time in his calendar. I have to leave early this evening. Could you call him and reschedule the call in consultation with Bob and with my diary (note I can't do early Monday morning but other than that just check existing engagements).

Thanks

Katherine

**Karen Egan**

**From:** Karen Egan  
**Sent:** 09 April 2008 15:09  
**To:** [REDACTED]  
**Cc:** Katherine Licken; Kilda Taylor  
**Subject:** RE: Réf. : RE: Request for tender : comparative overhead lines versus cables  
**Attachments:** Study tender score sheet - sent to [REDACTED]

[REDACTED]

Further to our phone conversation this afternoon I now attach the scores received by the [REDACTED] as requested. So, the Minister announced name of the successful tenderer in a press release yesterday, so I can now inform you that a study will be undertaken by Ecofys Germany GmbH.

Regards,

Karen Egan  
 Department of Communications, Energy  
 and Natural Resources,  
 - 31 Adelaide Road,  
 Dublin 2

Tel: +353 1 6782278  
 Fax: +353 1 6782969  
 Email: Karen.Egan@dcentr.gov.ie  
 Web: www.dcentr.gov.ie

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**From:** [REDACTED]  
**Sent:** 02 April 2008 10:41  
**To:** Karen Egan  
**Subject:** Réf. : RE: Request for tender : comparative overhead lines versus cables

Dear Mrs Egan

Following your mail, could you give me the contact with the relevant person in order to have my scores in advance

Yours sincerely

[REDACTED]

Karen Egan <Karen.Egan@dcentr.gov.ie>

[REDACTED]

**Tenders for the Study on the Comparative Merits of Overhead Electricity  
Transmission Lines versus Underground Cables**

**Score Sheet**

<b>Category</b>	<b>Points</b>	
Price	25	
Demonstrated understanding, analysis and coverage of terms of reference	25	
Comprehensiveness and quality of the Approach proposed	20	
Previous experience, expertise and Qualifications of the study team Including experience on similar projects	20	
Ability of the tenderer to manage the study Effectively and to complete it within the Required timescale	10	
<b>Total</b>	<b>100</b>	

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**Karen Egan**

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**From:** Katherine Licken  
**Sent:** 09 April 2008 15:28  
**To:** Karen Egan  
**Subject:** RE:

Karen,

think post should be OK, and just drop them an email to let them know its in the post.

anks

therine

---

**From:** Karen Egan  
**Date:** 09 April 2008 12:12  
**To:** Katherine Licken  
**Subject:**

therine,  
you want the contract couriered back to Ecofys?  
en

Karen Egan

From: Karen Egan  
Sent: 09 April 2008 11:57  
To: [REDACTED]  
Subject: [REDACTED] Feedback Discussion: Underground Cable vs. Overhead Line comparison study  
[REDACTED]

confirm that the call will take place at 15.00 on Friday.

Regards,  
Karen Egan  
Fiber (Corporate) Division

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[REDACTED]  
08 April 2008 08:40  
From: Karen Egan  
Subject: RE: [REDACTED] Feedback Discussion: Underground Cable vs. Overhead Line comparison study  
Karen

likely that I will be travelling at 14.30 on Friday. However, I will be free to talk on my mobile - details below.  
I would suit me better but if this presents a problem, stay with the original time.

Thank you for making the necessary arrangements.

[REDACTED]

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Karen Egan [mailto:Karen.Egan@dcenr.gov.ie]  
07 April 2008 15:54  
[REDACTED] Discussion: Underground Cable vs. Overhead Line comparison study  
[REDACTED]

It would be possible to provisionally book a conference call for Friday afternoon at 14.30? I will confirm for definite on Friday - apologies for the uncertainty.

Karen Egan  
Fiber (Corporate) Division

# Consultants appointed to undertake transmission network study

## "Study will provide clarity on overgrounding v. undergrounding"

Dublin, 8th April, 2008

Energy Minister Eamon Ryan announced today that international consultants Ecofys have been appointed by his Department to undertake the independent study on the comparative merits of overhead electricity transmission lines versus underground cables. The consultants were appointed following a tender process launched on 29 February on the Government's eTenders website.

The study is to be conducted on a national basis and its purpose is to provide the best available professional advice to the Minister on the relative merits of constructing and operating overhead transmission lines compared to underground cables, having regard to technical characteristics, reliability, operation and maintenance factors, environmental impact, possible health issues and cost.

The planning, development and routing of transmission line infrastructure is a matter for EirGrid, which is a wholly State-owned company. EirGrid has responsibility for operating the electricity transmission system in Ireland, including the wholesale electricity trading system. It delivers connections, transmission and market services to generators, suppliers and customers, using the high voltage electricity system. It is also responsible for planning the construction of high voltage transmission lines.

In the course of EirGrid's pre-planning public consultations on proposed routes for the Cavan - Tyrone/Monaghan and Cavan - Meath transmission lines, concerns have been expressed locally as to the impacts of overhead transmission lines. Noting that these concerns are likely to be common to all transmission line projects, and in order to provide clarity on issues in relation to overhead versus underground transmission lines, Minister Ryan announced that his Department would commission an independent national study on this issue.

**"The aim of the study is to provide further clarity and information on all of the issues in relation to underground cables and overhead lines. In so doing, we can help inform decisions on all current and future transmission line projects"** Minister Ryan said.

In tandem with the tender process, the Department placed advertisements in nine national newspapers requesting submissions from the public on the issue. Over 500 submissions were received by the closing date of 7<sup>th</sup> March. The consultants have been furnished with these submissions and will consider points raised, in their analysis of the merits or otherwise of underground and overground options. The consultants will also be available to meet with the Joint Oireachtas Committee on Communications, Energy and Natural Resources, to discuss the details of the report, once published.

It is expected that the report will be finalised by early June.

ENDS

**Note for Editors:**

Ecofys specialises in energy solutions. The company was contracted by Sustainable Energy Ireland, following a competitive tender process, to provide the final report of the All Island Grid Study in 2007. Ecofys will also utilise the services of Golder Associates, a global group of consulting companies specialising in ground engineering and environmental services. Golder has provided environmental consultancy services for a range of electricity generation and transmission related projects both in Ireland and the UK.

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*Check against delivery*

**Dáil Adjournment Debate on 8 April, 2008**

**Minister of State at the Department of Communications,**

**Energy and Natural Resources (Mr. T. Killeen)**

My colleague Minister Ryan announced earlier today that he has appointed international consultants Ecofys to undertake the independent study on the comparative merits of overhead electricity transmission lines versus underground cables. The consultants were appointed following a tender process launched on 29 February on the Government's eTenders website. Ecofys, which is based in the Netherlands, with offices in twelve different countries worldwide, specialises in energy saving and renewable energy solutions.

.../

Ecofys will also utilise the services of Golder Associates, a global group of consulting companies specialising in ground engineering and environmental services. Golder has provided environmental consultancy services for a range of electricity generation and transmission related projects both in Ireland and the UK.

The planning, development and routing of transmission line infrastructure is a matter for EirGrid, which is a wholly State-owned company. EirGrid has responsibility for operating the electricity transmission system in Ireland, including the wholesale electricity trading system. It delivers connections, transmission and market services to generators, suppliers and customers, using the high voltage electricity system. It is also responsible for planning the construction of high voltage transmission lines.

In the course of EirGrid's pre-planning public consultations on proposed routes for the North-South and Meath-Cavan

transmission lines, concerns were expressed locally about the impacts of overhead transmission lines. Noting that these concerns are likely to be common to all transmission line projects, and in order to provide clarity on issues in relation to overhead versus underground transmission lines, Minister Ryan decided that the Department would commission an independent national study on this issue. In doing so, he was also taking account of the views of Deputies from all sides of the House.

The aim of the study is to provide further clarity and information on all of the issues in relation to underground cables and overhead lines. In so doing, we can help inform decisions on all current and future transmission line projects. As part of its ongoing transmission development plan, and in line with the Government's Energy Policy White Paper, EirGrid is currently planning the construction and reinforcement of a number of transmission lines.

.../

The recently published All Island Grid Study also estimated the transmission infrastructure investments needed to accommodate increasing levels of renewable electricity and affirmed that up to 42% renewable energy is potentially feasible, requiring over 600 kilometres of additional transmission lines. EirGrid is also finalising a long-term Grid Development Strategy to 2025 which will set out plans for the next two decades.

The Ecofys study is to be conducted on a national basis. Its purpose is to provide the best available professional advice on the relative merits of constructing and operating overhead transmission lines compared to underground cables. It will have regard to technical characteristics, reliability, operation and maintenance factors, environmental impact, possible health issues and cost.

The consultants have been specifically asked to provide professional advice covering a review of electrical power transmission technologies currently in use for transmission of electricity of 110kV and above. They will examine the factual position regarding current practice for constructing transmission lines worldwide, including circumstances in which lines are constructed as underground cables. They will also be assessing the relative technical performance of overhead lines and underground cables. Technical considerations include losses, reliability, quality, security of supply and electromagnetic field generation. The study will compare relative capital costs, total life cycle costs, annualised operation and maintenance costs, and impact on unit electricity prices of both options. It will also examine the construction times and consequential impacts on security of supply of both options.

.../

The consultants will also assess in detail the comparative environmental impacts of both options. They will examine possible impacts on land use, geology and soils, and water resources. In addition, they will assess visual impact, effects on ecology and nature conservation and on air quality. They have also been asked to consider impacts on traffic, noise levels, tourism and communities.

In tandem with the tender process, the Department placed advertisements in nine national newspapers requesting submissions from the public on the issue. Over 500 submissions were received by the closing date of 7<sup>th</sup> March. The consultants have been furnished with these submissions and will consider points raised, in their analysis of the merits or otherwise of underground and overground options. The consultants will also be available to meet with the Joint Oireachtas Committee on Communications, Energy and Natural Resources, to discuss the details of the report, once published.

We expect that the report will be finalised by early June. The time frame for completion is in line with the tender specification.

**ENDS**

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# Consultants appointed to undertake transmission network study

## "Study will provide clarity on overgrounding v. undergrounding"

Dublin, 8th April, 2008

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The study is to be conducted on a national basis and its purpose is to provide the best available professional advice to the Minister on the relative merits of constructing and operating overhead transmission lines compared to underground cables, having regard to technical characteristics, reliability, operation and maintenance factors, environmental impact, possible health issues and cost.

The planning, development and routing of transmission line infrastructure is a matter for EirGrid, which is a wholly State-owned company. EirGrid has responsibility for operating the electricity transmission system in Ireland, including the wholesale electricity trading system. It delivers connections, transmission and market services to generators, suppliers and customers, using the high voltage electricity system. It is also responsible for planning the construction of high voltage transmission lines.

In the course of EirGrid's pre-planning public consultations on proposed routes for the North-South and Meath-Louth transmission lines, concerns have been expressed locally as to the impacts of overhead transmission lines. Noting that these concerns are likely to be common to all transmission line projects, and in order to provide clarity on issues in relation to overhead versus underground transmission lines, Minister Ryan announced that his Department would commission an independent national study on this issue.

The aim of the study is to provide further clarity and information on all of the issues in relation to underground cables and overhead lines. In so doing, we can help inform decisions on all current and

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NDS

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epartment of Communications, Energy and Natural Resources, 29-31 Adelaide Road, Dublin 2, Ireland  
el +353-1-6782000 Fax +353-1-6782449

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Karen Egan

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**From:** Karen Egan  
**Sent:** 07 April 2008 15:56  
**To:** Bob Hanna  
**Cc:** Katherine Licken  
**Subject:** FW: [REDACTED] Feedback Discussion: Underground Cable vs. Overhead Line comparison study

Bob,  
could you confirm your availability for a conference call with [REDACTED] on Friday at 14.30.

Karen Egan  
Grid (Corporate) Division

---

**From:** Karen Egan  
**Sent:** 07 April 2008 15:54  
**To:** [REDACTED]  
**Subject:** RE: [REDACTED] Feedback Discussion: Underground Cable vs. Overhead Line comparison study

Hi [REDACTED]  
Would it be possible to provisionally book a conference call for Friday afternoon at 14.30? I will confirm for definite on Wednesday - apologies for the uncertainty.

Karen Egan  
Grid (Corporate) Division

---

**From:** [REDACTED]  
**Sent:** 04 April 2008 17:23  
**To:** Karen Egan  
**Subject:** RE: [REDACTED] Feedback Discussion: Underground Cable vs. Overhead Line comparison study

Hi Karen  
The days are possible for me. I have a meeting at 16.00 on Wednesday and I am available next Friday afternoon.

---

**From:** Karen Egan [mailto:Karen.Egan@dcenr.gov.ie]  
**Sent:** 04 April 2008 17:18  
**To:** [REDACTED]  
**Subject:** [REDACTED] Underground Cable vs. Overhead Line comparison study

Apologies for the misunderstanding. Would you be free at some stage next Wednesday or Friday to take the conference call?

Regards,  
Karen Egan  
Grid (Corporate) Division

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From: [REDACTED]  
Sent: 04 April 2008 16:53  
To: Karen Egan  
Subject: [REDACTED] Discussion: Underground Cable vs. Overhead Line comparison study

Dear Karen

Unfortunately I missed a call today from Bob and Katherine to provide feedback on the Underground Cable vs. Overhead line comparison proposal. I was at a client meeting and did not have the conference call scheduled in my diary - I must have missed the relevant message. I can confirm that [REDACTED] would still value and appreciate this feedback. Please pass on my apologies to Katherine and Bob.

Regards,

[REDACTED]

[REDACTED]

[REDACTED]

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**Karen Egan**

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**From:** Brid McGrath  
**Sent:** 03 April 2008 16:39  
**To:** Katherine Licken; Lisa Keyes; Colm Ó Conaill  
**Cc:** Sara White; Kilda Taylor; Karen Egan  
**Subject:** RE: Transmission Infrastructure Study

Thanks Katherine for this. If Mon for signed contract then suppose we release on Tues. Should we meet briefly on it?

B

---

**From:** Katherine Licken  
**Sent:** 03 April 2008 16:33  
**To:** Brid McGrath; Lisa Keyes; Colm Ó Conaill  
**Cc:** Sara White; Kilda Taylor; Karen Egan  
**Subject:** Transmission Infrastructure Study

<< File: Press release announcement of consultants.doc >> Brid / Lisa / Colm

Attached is a draft press release announcing the appointment of consultants for the overhead v's underground study. The consultants are awaiting the return of their CEO from business to sign the contract tomorrow and will courier it to us once signed. This means we will receive and sign the contract on Monday, which in turn means that the final report will be received by the Department by end May (Saturday 31<sup>st</sup> May latest).

Can we discuss press release and how we might co-ordinate its issue with signing of contract etc?

Thanks


Katherine

**Karen Egan**

---

**From:** Katherine Licken  
**Sent:** 03 April 2008 16:33  
**To:** Brid McGrath; Lisa Keyes; Colm Ó Conaill  
**Cc:** Sara White; Kilda Taylor; Karen Egan  
**Subject:** Transmission Infrastructure Study

**Attachments:** Press release announcement of consultants.doc

  
Press  
announcement  
Brid / Lisa / Colm

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Can we discuss press release and how we might co-ordinate its issue with signing of contract etc?

Thanks

Katherine

## **Study on the Comparative Merits of Overhead Electricity Transmission Lines versus Underground Cables**

Eamon Ryan, T.D., Minister for Communications, Energy and Natural Resources, announced today that international consultants Ecofys, have been appointed by his Department to undertake the independent study on the comparative merits of overhead electricity transmission lines versus underground cables. The consultants were chosen following a tender process launched on 29<sup>th</sup> February on the Government's eTenders website.

The study is to be conducted on a national basis and its purpose is to provide the best available professional advice to the Minister on the relative merits of constructing and operating overhead transmission lines compared to underground cables, having regard to technical characteristics, reliability, operation and maintenance factors, environmental impact, possible health issues and cost.

Established in 1984, Ecofys specialises in energy saving and renewable energy solutions. It is based in the Netherlands and has offices in thirteen different countries worldwide. The company was contracted by Sustainable Energy Ireland, following a competitive tender process, to provide the final report of the All Island Grid Study in 2007. Ecofys is currently involved in collaborative research with industry to investigate innovative concepts of underground cabling for offshore and onshore transmission. This research is being conducted in partnership with Prof. Dr.-Ing. habil. Heinrich Brakelmann of the University Duisburg-Essen, Germany.

In undertaking the Irish study, Ecofys will partner again with Professor Brakelmann, who is author of more than 130 technical publications and three books in the field of underground cable technologies. His experience includes the provision of advice on the issue of overhead lines versus underground cables for a dedicated route in the North of Germany and in relation to the undergrounding of 110kV connections to the German transmission system.

Ecofys will also utilise the services of Golder Associates, a global group of consulting companies specialising in ground engineering and environmental services, with 150 offices worldwide and over 6,000 dedicated professionals, including an office in Naas, Ireland. Golder has provided environmental consultancy services for a range of electricity generation and transmission related projects both in Ireland and the UK.

In tandem with the tender process, the Department placed advertisements in 9 national newspapers, including the Farmers Journal, requesting submissions from the public on the issue. Over 500 submissions were received by the closing date of 7<sup>th</sup> March. The consultants have been furnished with these submissions, and will consider points raised in their analysis of the merits or otherwise of underground and overground options. The consultants will also be available to meet with the Joint Oireachtas Committee on Communications, Energy and Natural Resources, to discuss the details of the report, once published.

The commissioning of the independent study was announced by Minister Ryan on

6<sup>th</sup> February 2008, following a series of meetings by the Joint Oireachtas Committee, in which the issue of transmission line infrastructure generally was discussed, as well as issues around current EirGrid transmission line proposals.

The planning, development and routing of transmission line infrastructure is a matter for EirGrid, which is wholly owned State Company. EirGrid has responsibility for operating the electricity transmission system in Ireland, including the wholesale electricity trading system. It delivers connections, transmission and market services to generators, suppliers and customers, using the high voltage electricity system. It is also responsible for planning the construction of high voltage transmission lines.

In the course of EirGrid's pre-planning public consultations on proposed routes for the North South and Meath Cavan transmission lines, concerns have been expressed locally as to the impacts of overhead transmission lines. Noting that these concerns are likely to be common to all transmission line projects, and in order to provide clarity on issues in relation to overhead versus underground transmission lines, Minister Ryan announced that his Department would commission an independent national study on this issue.

"The aim of the study is to provide further clarity and information on all of the issues in relation to underground cables and overhead lines. In so doing, we can help inform policy decisions on all current and future transmission line projects" Minister Ryan said.

It is expected that the report will be finalised by the end of May.

ends

●ren Egan

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From: Katherine Licken  
Sent: 03 April 2008 13:36  
To: Karen Egan  
Subject: [REDACTED]

Karen,

Bob asked if he could see the file on the selection of tenders for the study by 3.30 this pm so he can prepare for the discussion with [REDACTED] tomorrow? Could you leave it on his desk. I'll also need to see their presentation and scores this evening, to refresh my memory.

Thanks

Katherine

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**Karen Egan**

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**From:** Jens Boemer [J.Boemer@ecofys.de]  
**Sent:** 02 April 2008 17:55  
**To:** Kilda Taylor  
**Cc:** Katherine Licken; Karen Egan  
**Subject:** RE: contract

Dear Kilda,

Thank you very much for sending the final contract. We have forwarded it to our CEO and hope that he will sign it tomorrow. Afterwards it will be send by courier to the address stated in the contract:

Karen Egan  
Administrative Officer  
EirGrid (Corporate) Division  
Department of Communications, Energy and Natural Resources  
29 - 21 Adelaide Road, Dublin 2  
Fax No. + 353 1 6782969

Let me just remark that I changed "Draft Consultancy Agreement" into "Consultancy Agreement" on the cover page which is hopefully fine with you.

We look forward to working with you.

Regards,  
Jens

--

Dipl.-Ing. Jens Bömer  
Power Systems and Markets  
Ecofys Germany GmbH

Firmensitz: Köln | Geschäftsleitung: Carsten Petersdorff | Amtsgericht Köln: HRB 28527

T: + (0) 30 - 297 735 79 - 14  
F: +49 (0) 30 - 297 735 79 - 99  
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**Our mission: a sustainable energy supply for everyone**

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28/05/2008