Het Lam
-Advocaten-

11 JUNI 2013

Autoriteit Consument en Markt
Directie Energie
Postbus 16326
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Den Haag, 11 juni 2013

Zaaknummer: 104033

Betreft: **Zienswijze VEMW m.b.t. ontwerp-methodebesluit waarmee de methoden van regulering worden vastgesteld voor de taken als bedoeld in artikel 10 en artikel 10a Gaswet van de netbeheerder van het landelijk gastransportnet voor de periode 2014 tot en met 2016**

Geachte heer, mevrouw,

Namens onze cliënte, zijnde de Vereniging voor Energie, Milieu en Water (VEMW), kantoorhoudende te Woerden aan de Houttuinlaan 12 (3447 GM), berichten wij u als volgt.

In de Staatscourant van 1 mei 2013, nr. 11655 heeft de Autoriteit Consument en Markt (de "ACM") belanghebbenden in de gelegenheid gesteld te reageren op het ontwerp-methodebesluit waarmee de methoden van regulering worden vastgesteld voor de taken als bedoeld in artikel 10 en artikel 10a Gaswet van de netbeheerder van het landelijk gastransportnet, Gasunie Transport Services B.V. ("GTS") (het "Ontwerpbesluit"). Het betreft de methoden van regulering voor de volgende taken:

a. het uitvoeren van gastransport en de daaraan gerelateerde taken (de transporttaak);
b. het voorzien van een aansluitpunt (de aansluittaak);
c. het inwerking hebben en onderhouden van aansluitingen op het landelijke gastransportnetwerk die voor 1 april 2011 in gebruik zijn genomen (door de ACM aangeduid als 'de bestaande aansluitingtaak');
d. het in evenwicht houden van het landelijke gastransportnet (de balanceringstaak); en
e. het omzetten van gas naar een hogere of lagere energie-inhoud, dan wel gas in een door de gebruiker gewenste samenstelling brengen (de kwaliteitsconversietaak).[1]

Van de geboden gelegenheid tot het indienen van een schriftelijke zienswijze maakt VEMW graag gebruik.

[1] Deze omschrijving van de taken is zoals de ACM die in randnr. 3 van het Ontwerpbesluit geeft.

Ondergetekenden zijn door VEMW uitdrukkelijk verzocht en gemachtigd tot het indienen van deze zienswijze. De ACM wordt verzocht met ingang van heden alle op dit onderwerp betrekking hebbende correspondentie tot ondergetekenden te richten.

I. AANSLUITTPUNTEN

1. Aan de regulering van GTS is ten opzichte van eerdere methodebesluiten het voorzien van een aansluitpunt (de aansluittaak) toegevoegd. Deze aansluittaak is neergelegd in artikel 10 lid 6 onder b Gaswet.

2. Op grond van artikel 82 lid 2 Gaswet moet voor deze aansluittaak een methode van regulering wordt vastgesteld.

3. Onduidelijk is of het Ontwerpbesluit de methode van regulering voor de aansluittaak (het voorzien van een aansluitpunt) is opgenomen en zo ja hoe de regulering van de aansluittaak is geregeld.

4. VEMW verzoekt de ACM om de aansluittaak van GTS in het methodebesluit uit te werken (mede uit het oogpunt van rechtszekerheid).

II. GESTANDAARDISEERDE ACTIVA WAARDE (GAW)

PARAGRAAF 1: ALGEMEEN – GAW TE HOOG

5. Voor de berekening van de gereguleerde tarieven van GTS is de hoogte van de zogeheten Gestandaardiseerde Activa Waarde (GAW) van groot belang. De GAW werkt door in de tarieven via de jaarlijkse afschrijvingen en een vermogenskostenvergoeding. Hoe hoger de GAW is, hoe groter de ruimte voor de vergoedingen die GTS via de tarieven ontvangt.

6. In het Ontwerpbesluit wordt door de ACM niet duidelijk gemaakt hoe de GAW waarvan in het Ontwerpbesluit wordt uitgegaan is bepaald.

7. De ACM wordt verzocht in het methodebesluit uitdrukkelijk te motiveren hoe zij de GAW waarvan in het methodebesluit wordt uitgegaan heeft bepaald.

8. In het Ontwerpbesluit lijkt de ACM voor de hoogte van de GAW uit te gaan van continue regulering, in die zin dat de ACM lijkt voort te bouwen op de (initiële) GAW die in de Methodebesluiten voor de jaren 2006 t/m 2009 door de ACM voor GTS[2] is bepaald en waarvan ook in de Methodebesluiten voor de jaren 2010 t/m 2013 voor GTS[3] door de ACM is uitgegaan.

[2] Het Methodebesluit Transport GTS – periode 2006 t/m 2009 (besluit nummer 103557_1/330), het methodebesluit Balancering GTS – periode 2006 t/m 2009 (besluit nummer 103557_1/331), en het methodebesluit Kwaliteitsconversie GTS – periode 2006 t/m 2009 (besluit nummer 103557_1/332) van de ACM.

[3] Het Methodebesluit Transport GTS – periode 2010 t/m 2013 (besluit nummer 103794/332), het methodebesluit Balancering GTS – periode 2010 t/m 2013 (besluit nummer 103794/333), en het methodebesluit Kwaliteitsconversie GTS – periode 2010 t/m 2013 (besluit nummer 103794/334) van de ACM.

9. VEMW merkt op dat voor zover in de regulering het beginsel van continue regulering geldt, dit beginsel sowieso wijkt voor de eisen die op grond van het Europees recht, en in het bijzonder artikel 13 Verordening 715/2009/EG[4] aan de tarieven worden gesteld.

10. Artikel 13 Verordening 715/2009/EG bepaalt:

De door de transmissiesysteembeheerders toegepaste tarieven, of de voor de berekening daarvan gebruikte methoden die zijn goedgekeurd door de regulerende instanties overeenkomstig artikel 41, lid 6, van Richtlijn 2009/73/EG, alsmede de tarieven die worden gepubliceerd overeenkomstig artikel 32, lid 1, van die richtlijn, zijn transparant, houden rekening met de noodzaak van systeemintegriteit en verbetering ervan en zijn een afspiegeling van de werkelijke kosten, voor zover deze overeenkomen met die van een efficiënte, structureel vergelijkbare netbeheerder en transparant zijn, waarbij tevens wordt gelet op de nodige winst op de investeringen en in voorkomende gevallen met inachtneming van de benchmarking van tarieven door de regulerende instanties [...] (onderstreping toegevoegd, VEMW).

11. Daarbij is in overweging 7 van Verordening 715/2009/EG aangegeven:

"Bovendien moeten de tarieven een afspiegeling vormen van de werkelijke kosten, voor zover deze overeenkomen met die van een efficiënte, structureel vergelijkbare netbeheerder [...]" (onderstreping toegevoegd, VEMW).

12. Gelet op artikel 13 Verordening 715/2009/EG moet de GAW waarvan in het methodebesluit wordt uitgegaan de onderliggende efficiënte kosten van GTS reflecteren en mag zij niet leiden tot dubbele betalingen voor afnemers en daarmee samenhangende overwinsten voor GTS. Dit blijkt ook duidelijk uit het Commission staff working document on tariffs for access to the natural gas transmission networks regulated under Article 3 of Regulation 1775/2005 van 20 april 2007 (het " Commission staff working document").[5]

13. De ACM moet in verband met de vaststelling van het methodebesluit voor GTS de GAW bepalen in overeenstemming met het Europees recht, meer in het bijzonder in overeenstemming met artikel 13 Verordening 715/2009/EG. Europese verordeningen zijn rechtstreeks van toepassing in de rechtsorde van lidstaten en zetten in voorkomend geval daarmee strijdige nationale wet- en regelgeving en daarmee strijdig beleid opzij.

14. Daarbij wijst VEMW er op dat uit de Gaswet volgt dat door de wetgever ten aanzien van GTS, anders dan ten aanzien van de regionale netbeheerders gas en elektriciteit en de netbeheerder van het landelijk hoogspanningsnet, uitdrukkelijk niet gekozen is voor een systeem van continue regulering, waarbij de eindinkomsten van een vorige reguleringsperiode als begininkomsten van de nieuwe reguleringsperiode worden genomen.

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[4] Verordening (EG) nr. 715/2009 van het Europees parlement en de Raad van 13 juli 2009 betreffende de voorwaarden voor de toegang tot aardgastransmissienetten en tot intrekking van Verordening (EG) nr. 1775/2005 (PbEU 2009, L211/36).

[5] SEC(2007) 535. Zie onder meer randnrs. 5 en 12 van het Commission staff working document.

15. Dat voor GTS niet gekozen is voor een systeem van continue regulering blijkt met name uit artikel 82 Gaswet. In het bijzonder wijst VEMW er in dit verband op dat blijkens artikel 82 lid 1 Gaswet op de vaststelling van de tarieven voor GTS de formule uit artikel 81 lid 1 onder d Gaswet niet van toepassing is.

16. Dat voor GTS niet gekozen is voor continue regulering blijkt ook uit het feit dat ten aanzien van GTS artikel 81c lid 4 Gaswet niet van toepassing is.

17. Het voorgaande impliceert dat de ACM aan het begin van een reguleringsperiode steeds de GAW moet bepalen, op het niveau van de werkelijke, efficiënte kosten in de zin van artikel 13 Verordening 715/2009/EG.

18. VEMW constateert dat de GAW waarvan in het Ontwerpbesluit wordt uitgegaan leidt tot te hoge tarieven en daarmee overwinsten die in strijd zijn met het Europees recht. In dit verband verwijst VEMW naar het jaarverslag voor het jaar 2004 van Gasunie N.V. (hierna "Gasunie")[6], de toenmalige eigenaar van de activa, het rapport 'GTS's RAB and implications for tariffs and investment' van Brattle uit november 2007[7] (**bijlage 1**), en het rapport 'The opening regulatory asset base of the Dutch gas transmission system' (**bijlage 2**) van Oxera uit april 2011.[8]

19. VEMW verwijst hier naar de (gereguleerde) jaarrekeningen over 2011 en 2012 alsmede naar de rapportage Besluit Financieel Beheer Netbeheer over 2011 en 2012 van GTS. Hieruit blijkt dat de inkomsten van GTS niet aansluiten bij de efficiënte kosten inclusief een redelijk rendement.

20. Voor de volledigheid merkt VEMW op dat bij de bepaling van de GAW waarvan in het methodebesluit wordt uitgegaan in het verleden opgewekt vertrouwen van vermogensverschaffers geen rol kan spelen. Opgewekt vertrouwen van vermogensverschaffers is namelijk geen grond om af te wijken van de eisen die op grond van artikel 13 Verordening 715/2009/EG voor de bepaling van de GAW gelden. Voor zover al sprake zou zijn van opgewekt vertrouwen – hetgeen naar het oordeel van VEMW niet is gebleken – kan opgewekt vertrouwen niet artikel 13 Verordening 715/2009/EG opzij zetten.

21. Overigens mag in het verleden opgewekt vertrouwen ook reeds op grond van de Gaswet bij de bepaling van de GAW geen rol spelen nu op grond van artikel 82 Gaswet geen sprake is van continue regulering van GTS.

22. In het licht van het voorgaande wordt de ACM verzocht de waarde van de GAW uitdrukkelijk met het methodebesluit vast te stellen, in overeenstemming met de eisen uit het Europees recht en de Gaswet.

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[6] Zie www.gasunietransportservices.nl. Zie met name p. 48 van het jaarverslag.
[7] Zie met name p. 3 en 9 van het rapport.
[8] Zie met name p. 16 van het rapport.

PARAGRAAF 2: DESINVESTERINGEN

23. Bij de bepaling van de kosten van GTS in het Ontwerpbesluit zijn door de ACM gedesinvesteerde activa niet verwijderd uit de GAW. De ACM stelt dit te doen teneinde een volledige vergoeding van de efficiënte kosten van een desinvestering tot stand te brengen. De netbeheerder blijft op deze manier voor het gedesinvesteerde actief een vergoeding krijgen over de resterende afschrijvingstermijn. Het resultaat is dat GTS een vergoeding blijft ontvangen voor dit actief alsof het nooit gedesinvesteerd is.9

24. VEMW gaat in dit onderdeel van haar schriftelijke zienswijze niet in op de vraag óf desinvesteringen in de kosten verdisconteerd mogen worden. Daarvoor verwijst zij in het algemeen naar het vereiste van werkelijke, efficiënte kosten zoals dat geldt op grond van artikel 13 Verordening 715/2009/EG en artikel 82 lid 4 Gaswet . Zij richt zich in dit onderdeel van haar zienswijze op de manier waarop in het Ontwerpbesluit met desinvesteringen wordt omgegaan.

25. VEMW merkt allereerst op dat zij met verbazing heeft kennisgenomen van de regeling die in het Ontwerpbesluit voor desinvesteringen is opgenomen. Het onderwerp 'desinvesteringen' is namelijk niet aan bod geweest in de bijeenkomsten van de klankbordgroepen. Uit het Ontwerpbesluit blijkt niet waarom dit het geval is.

26. Daarnaast merkt VEMW op dat de WACC reeds een vergoeding in de vorm van een risico-opslag bevat onder meer ter dekking van kosten van desinvesteringen. Onduidelijk is hoe het niet verwijderen van desinvesteringen uit de GAW zich tot deze risico-opslag verhoudt.

27. Verder stelt VEMW vast dat doordat desinvesteringen niet worden verwijderd uit de GAW de vergoeding van de WACC over de reeds gedesinvesteerde activa blijft doorlopen, hetgeen leidt tot dubbele betalingen door afnemers en overwinsten van GTS.

28. Daarbij is de wijze waarop in het Ontwerpbesluit met desinvesteringen wordt omgegaan niet in overeenstemming met het feit dat het doorgaans efficiënter is om een desinvestering direct af te schrijven en dat het danook in het dagelijks economisch verkeer gangbaar is om desinvesteringen direct af te schrijven.

29. De wijze waarop in het Ontwerpbesluit met desinvesteringen wordt omgegaan is naar het oordeel van VEMW niet in overeenstemming met artikel 13 Verordening 715/2009/EG en artikel 82 Gaswet. Bovendien is het Ontwerpbesluit op dit punt ondeugdelijk gemotiveerd.

30. De ACM wordt verzocht de desinvesteringen te verwijderen uit de GAW dan wel de relatie tussen de WACC en de desinvesteringen in de GAW te verduidelijken.

[9] Zie randnr. 52 e.v. van het Ontwerpbesluit.

PARAGRAAF 3: OPSPLITSING GAW

31. Zoals in paragraaf 1 van dit hoofdstuk reeds is aangegeven is aan de regulering van GTS ten opzichte van eerdere methodebesluiten de aansluittaak toegevoegd. Deze aansluittaak is neergelegd in artikel 10 lid 6 onder b Gaswet.

32. Op grond van artikel 82 lid 2 Gaswet moet voor deze aansluittaak een methode van regulering wordt vastgesteld.

33. Artikel 13 Verordening 715/2009/EG en artikel 82 Gaswet brengen mee dat voor de vaststelling van het methodebesluit voor de nieuwe komende reguleringsperiode voor GTS opnieuw de GAW moet worden bepaald.

34. Nu in het Ontwerpbesluit voort wordt gebouwd op de GAW zoals die voor de methodebesluiten voor GTS voor de vorige reguleringsperiode is bepaald, is de GAW waarvan in het Ontwerpbesluit wordt uitgegaan onjuist, namelijk te hoog.

35. VEMW verzoekt de ACM het Ontwerpbesluit op dit punt aan te passen en de GAW waarvan in het Ontwerpbesluit wordt uitgegaan in overeenstemming te brengen met de eisen van artikel 13 Verordening 715/2009/EG en artikel 82 Gaswet.

36. Daarbij moet de GAW worden gesplitst in de GAW voor transport en de GAW voor aansluitingen, waarbij de GAW voor aansluitingen verder moeten worden gesplitst in de GAW voor de aansluittaak (aansluitpunten) en de GAW voor bestaande aansluitingen. Het Ontwerpbesluit voldoet hier niet aan.

37. De ACM wordt verzocht de GAW in het Ontwerpbesluit overeenkomstig de eisen van artikel 13 Verordening 715/2009/EG en artikel 82 Gaswet te splitsen.

38. Daarbij merkt VEMW op dat GTS behalve de wettelijke taak uit artikel 10 lid 6 onder b Gaswet om te voorzien in aansluitpunten ook de wettelijke taak heeft om de rest van de betreffende aansluitingen te keuren.[10] Onduidelijk is hoe de kosten van deze keuringstaak worden berekend. Hierdoor is het Ontwerpbesluit ondeugdelijk gemotiveerd. VEMW verzoekt de ACM nader te motiveren hoe in het Ontwerpbesluit met de kosten van de keuringstaak wordt omgegaan.

39. De ACM wordt verzocht in het methodebesluit aan te geven of de kosten van de keuringstaak in het methodebesluit zijn meegenomen en zo ja, hoe dat is gedaan.

40. Daarbij merkt VEMW op dat de tekst in randnr. 157 van het Ontwerpbesluit en de passages in het rapport 'Onderzoek naar de Gasaansluitdienst GTS' van 22 april 2013 van Jacobs waarnaar in het Ontwerpbesluit wordt verwezen door de ACM onterecht vertrouwelijk. Daardoor is het Ontwerpbesluit tevens ondeugdelijk gemotiveerd.

[10] Zie ook TK 31 907, nr. 7, p. 86.

41. VEMW verzoekt de ACM de passages uit randnr. 157 en het rapport van Jacobs die vertrouwelijk zijn gemaakt alsnog openbaar te maken.

III. PRODUCTIVITEITSVERANDERING (FRONTIER SHIFT)

42. In het Ontwerpbesluit past de ACM nadat zij de huidige efficiënte kosten van GTS heeft berekend hierop een zogenoemde *frontier shift* toe. De frontier shift is de verandering in productiviteit die wordt behaald door de meest efficiënte bedrijven in een sector. De ACM heeft een adviesbureau, CEPA, gevraagd om voor GTS de frontier shift te berekenen. In het rapport[11] dat CEPA daarop heeft opgesteld adviseert CEPA de ACM om op de totale kosten een frontier shift vast te stellen tussen een bandbreedte van 0,5% en 2,1%. De ACM stelt vervolgens in het Ontwerpbesluit zonder inhoudelijke afweging en argumentatie de frontier shift voor GTS vast op het middelpunt van de bandbreedte uit het advies van CEPA, namelijk 1,3%.[12]

43. Daarbij stelt CEPA in het door haar aan de ACM uitgebrachte rapport dat de onderkant van de bandbreedte die voor de berekening van de frontier shift moet worden gebruikt gelijk is aan de gemiddelde outputprijsverandering voor de geselecteerde representatieve sectoren uit de Nederlandse economie. De bovenkant van de bandbreedte is volgens het rapport van CEPA gelijk aan het *gemiddelde* van de relevante beschikbare studies naar gerealiseerde frontier shifts door buitenlandse TSO's terwijl de onderkant van de bandbreedte meer bedrijven in het algemeen representeert.

44. Naar het oordeel van VEMW kan de ACM niet met deze berekeningswijze van de frontier shift, waarbij de ACM het gemiddelde neemt van de door CEPA gegeven bandbreedtes, volstaan, mede gelet op het belang van deze parameter voor het bereiken van het efficiënte kostenniveau in ieder jaar van de reguleringsperiode waarop het methodebesluit ziet.

45. VEMW is van mening dat de ACM bij de berekening van de frontier shift voor GTS rekening moet houden met vergelijkbare netbeheerders. Gelet op de in het rapport van CEPA gehanteerde bandbreedtes is een hoge frontier shift dan representatief voor GTS. De bovenkant van de bandbreedte die door CEPA in haar rapport is bepaald is immers een gemiddelde van verschillende landelijke netbeheerders.

46. In het licht van het voorgaande verzoekt VEMW de ACM om het Ontwerpbesluit aan te passen.

IV. PIPE-TO-PIPE COMPETITION

47. In het Ontwerpbesluit biedt de ACM GTS extra tariefruimte in het geval sprake is van pipe-to-pipe competition op een bepaalde route. GTS dient daarvoor aan te tonen dat zij op die bepaalde route effectieve concurrentie ondervindt en dat het vasthouden aan het principe van kostenoriëntatie voor het desbetreffende tarief op die route de concurrentie verstoort.[13]

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[11] Cambridge Economic Policy Associates Ltd, Ongoing efficiency in new method decisions for Dutch electricity and gas network operators, november 2012, www.acm.nl.
[12] Zie met name randnr.161 e.v. van het Ontwerpbesluit.
[13] Zie onder meer randnr. 51 e.v. van het Ontwerpbesluit.

48. Op grond van artikel 13 Verordening 715/2009/EG dient de ACM als de regulerende instantie in de zin van deze verordening de criteria vast te stellen aan de hand waarvan zij toetst of sprake is van "effective pipeline-to-pipeline competition". Deze criteria dienen te zijn afgestemd met naburige nationale instanties. In dit verband verwijst VEMW ook naar het Commission staff working document.[14]

49. Ook de ACM onderkent in het Ontwerpbesluit dat zij de criteria moet bepalen aan de waarvan zij toetst of sprake is van "effective pipeline-to-pipeline competition". In randnr. 247 van het Ontwerpbesluit stelt de ACM immers:

"ACM dient derhalve de criteria te bepalen aan de hand waarvan zij toetst of sprake is van "effective pipeline-to-pipeline competition". Deze criteria dienen te zijn afgestemd met naburige nationale regulerende instanties.

50. VEMW constateert dat het Ontwerpbesluit niet de criteria voor de uit te voeren benchmark bevat.

51. In het bijzonder verwijst VEMW in dit verband naar randnrs. 247 en 248 van het Ontwerpbesluit, waarin de ACM enkel stelt:

"ACM dient derhalve de criteria te bepalen aan de hand waarvan zij toetst of sprake is van "effective pipeline-to-pipeline competition". Deze criteria dienen te zijn afgestemd met naburige nationale regulerende instanties. In dit verband verwijst ACM naar het onderzoek dat Brattle in 2007 en 2010 voor ACM heeft uitgevoerd. Daarin heeft ACM Brattle gevraagd te onderzoeken welke criteria andere toezichthouders hanteren en een methode te ontwikkelen die in lijn is met die van andere toezichthouders. In lijn met de methodes die zijn gebruikt door andere toezichthouders, stelt Brattle dat concurrentie effectief is indien "GTS zonder op kosten gebaseerde tariefregulering geremd zou zijn haar tarieven significant te verhogen". Brattle definieert significant daarbij als 10%. ACM zal deze methode ook hanteren bij de beoordeling van het voorstel van GTS voor zover deze methode nog steeds in lijn is met de methodes van andere toezichthouders.

Een verzoek van GTS waarbij zij voor een of meer bepaalde transportroutes een tarief voorstelt buiten de bandbreedte, zal daarom goed onderbouwd moeten worden, waarbij wordt aangetoond dat is voldaan aan de eisen die ACM, in navolging van de Commissie, daaraan stelt zoals verwoord in bovenstaande randnummers.

52. Hiermee voldoet het Ontwerpbesluit niet aan de eisen van het Europees recht, in het bijzonder artikel 13 Verordening 715/2009/EG, zoals ook toegelicht in het Commission staff working document. De ACM wordt verzocht het Ontwerpbesluit op dit punt aan te passen.

53. Uit het Ontwerpbesluit blijkt verder niet hoe de daarin geformuleerde mogelijkheid voor extra tariefruimte voor GTS in het geval sprake is van pipe-to-pipe competition op een bepaalde route zich verhoudt tot het verbod op kruissubsidie, welk verbod zowel op grond van de Gaswet als in

[14] Zie onder meer randnr. 17 van het Commission staff working document.

artikel 13 Verordening 715/2009/EG geldt. Zo blijkt uit het Ontwerpbesluit niet welke tarieven indien GTS aan de 'criteria' om te mogen benchmarken voldoet zullen wijzigen en in welke mate.

54. De ACM wordt verzocht dit in het methodebesluit nader te motiveren.

55. Ook blijkt uit het Ontwerpbesluit niet hoe de daarin geformuleerde mogelijkheid voor extra tariefruimte voor GTS zich verhoudt tot het ontkoppeld entry-exitsysteem waarvan sprake is. Naar het oordeel van VEMW verdraagt zich het vaststellen van concurrentie op routes – waarbij een koppeling wordt gemaakt tussen bepaalde entry- en exitpunten – zich niet met het systeem van ontkoppelde entry-exit.

56. De ACM wordt verzocht dit in het methodebesluit te verduidelijken.

57. Het is VEMW op basis van het Ontwerpbesluit verder niet duidelijk hoe de daarin geformuleerde mogelijkheid voor extra tariefruimte voor GTS zich verhoudt tot de capaciteitsallocatie op grenspunten op basis van veiling met een mechanisme van overboeking en terugkoop, dat op basis van het Europese derde reguleringspakket (meer in het bijzonder de network code on Capacity Allocation Mechanisms en de network code on Congestion Management Procedures) ontwikkeld wordt.

58. De ACM wordt verzocht dit in het methodebesluit nader te motiveren.

V. WACC

PARAGRAAF 1: ALGEMEEN

59. Uit het Ontwerpbesluit volgt dat de ACM voor de reguleringsperiode 2014 t/m 2016 uitgaat van een voor GTS van toepassing zijnde WACC van 3,6% (reëel, voor belastingen). De WACC waarvan de ACM in het Ontwerpbesluit uitgaat is daarmee lager dan de WACC die de ACM in de vorige reguleringsperiode voor GTS hanteerde, waarbij het verschil met de WACC uit de vorige reguleringsperiode blijkens het Ontwerpbesluit met name is ingegeven door veranderingen op de kapitaalmarkten.[15]

60. Naar de mening van VEMW is een WACC van 3,6% (reëel, voor belastingen) waarvan in het Ontwerpbesluit voor de reguleringsperiode 2014 t/m 2016 wordt uitgegaan evenwel onjuist, namelijk te hoog.

61. Deze te hoge WACC is onder meer het gevolg van een overschatting van de kapitaalkosten van GTS die aan de WACC ten grondslag ligt, waardoor de WACC uit het Ontwerpbesluit leidt tot een belangrijke afwijking van het vereist van efficiënte kosten en een redelijk rendement in de zin van artikel 13 Verordening 715/2009/EG.

[15] Zie met name bijlage 2 bij het Ontwerpbesluit.

62. De WACC van 3,6% voor GTS die uit het Ontwerpbesluit leidt daarmee tot tarieven voor GTS die hoger zijn dan op grond van het Europees recht, waaronder in het bijzonder artikel 13 Verordening 715/2009/EG, zijn toegestaan. Meer in het bijzonder leidt de WACC tot met het Europees recht strijdige overwinsten voor GTS.

63. VEMW is van mening dat de WACC op circa 2,6% in plaats van 3,6% moet worden vastgesteld.

64. Ter onderbouwing verwijst VEMW naar het rapport van SIRM van 11 juni 2013 dat als **bijlage 3** is opgenomen.

65. Ter toelichting merkt VEMW verder het volgende op.

PARAGRAAF 2: RISICOVRIJE RENTE

66. In het Ontwerpbesluit hanteert de ACM voor de berekening van de risicovrije rente staatsobligaties met een looptijd van 10 jaar.[16]

67. In het Ontwerpbesluit past de ACM verder voor de berekening van de risicovrije rente een mix van Nederlandse en Duitse staatsobligaties toe en kiest de ACM daarbij voor een verhouding van 50/50 van Nederlandse en Duitse staatsobligaties.[17]

68. VEMW is van mening dat de ware (theoretische) risicovrije rente op de kapitaalmarkt het beste wordt benaderd door Duitse staatsobligaties. Het verschil in basispunten tussen Duitse en Nederlandse staatsobligaties heeft voornamelijk te maken met de liquiditeit op de beide kapitaalmarkten. Netbeheerders hoeven daarvoor niet gecompenseerd te worden. Het gaat immers om een theoretische waarde. Voor de berekening van de risicovrije rente, en daarmee de kosten voor vreemd vermogen, moet daarom enkel gekeken worden naar de waarde van een Duitse staatsobligatie.

69. Concluderend is VEMW van mening dat het toepassen van een Duitse staatobligatie de ware risicovrije rente het beste benadert.

PARAGRAAF 3: RENTEOPSLAG

70. In het Ontwerpbesluit hanteert de ACM voor de renteopslag een vergelijkingsgroep met een credit rating in de A-range. Daarnaast beschrijft de ACM dat Brattle een vergelijkingsgroep hanteert voor Europese nutsbedrijven met een single-A rating. In het Ontwerpbesluit komt de ACM mede op basis hiervan tot een renteopslag van 1,20%.[18]

71. VEMW merkt op dat de renteopslag voor single-A nutsbedrijven echter lager moet zijn dan 1,2%. De renteopslag is berekend ten opzichte van de Duitse risicovrije rente. VEMW is van

[16] Randnr. 17 e.v. en randnr. 41 van bijlage 2 bij het Ontwerpbesluit.
[17] Randnr. 21 e.v. en randnr. 41 van bijlage 2 bij het Ontwerpbesluit.
[18] Randnr. 36 e.v. en randnr. 41 van bijlage 2 bij het Ontwerpbesluit.

mening dat de ACM consistent moet zijn en of de Duitse risicovrije rente moet toepassen of de renteopslag moet corrigeren.

PARAGRAAF 4: TRANSACTIEKOSTEN

72. In het Ontwerpbesluit past de ACM voor de vaststelling van de WACC een extra opslag van 0,15% toe voor transactiekosten.[19]

73. VEMW is van mening dat die opslag niet in lijn is met de werkelijke, efficiënte transactiekosten en een redelijk rendement.

74. Alhoewel VEMW zich herkent in de 0,15% die wordt gehanteerd om de *non-interest* kosten te benaderen is het volgens VEMW onjuist om deze opslag toe te passen op het (totale) vreemd vermogen. De netbeheerder krijgt namelijk reeds via andere routes een vergoeding voor de zogenaamde *non-interest* kosten. Bijvoorbeeld via de vergoeding voor (ingehuurd) personeel, verzekeringspremies en advieskosten die de netbeheerder op kan voeren. Het hanteren van een opslag van transactiekosten is daarmee niet in lijn met de werkelijke (transactie-)kosten die een netbeheerder maakt.

75. Bovendien financiert een netbeheerder slechts een klein deel van zijn vreemd vermogen jaarlijks en is het hanteren van een opslag van 15 basispunten voor het gehele vreemde vermogen te hoog. Uiteraard zijn er transactiekosten die gelden voor het gehele vreemde vermogen maar de 0,15% is met name gevormd door de kosten die het afsluiten van een nieuwe lening met zich meebrengt.

76. VEMW is van mening dat de ACM geen opslag voor transactiekosten moet toepassen aangezien deze opslag niet overeenkomt met de werkelijke, efficiënte transactiekosten die GTS heeft en niet leidt tot een redelijk rendement. Als de ACM toch besluit in het methodebesluit een opslag voor transactiekosten toe te passen dan moet deze opslag eerder tussen de 2 en 5 basispunten liggen en moet niet van 0,15% worden uitgegaan.

PARAGRAAF 5: MARKTRISICOPREMIE

77. In het Ontwerpbesluit hanteert de ACM historische gegevens voor het bepalen van de marktrisicopremie (MRP). De ACM komt in het Ontwerpbesluit op basis van de door haar gebruikte historische gegevens tot een MRP van 5,0%.[20]

78. VEMW is van mening dat de ACM deze keuzes onvoldoende motiveert. Zo is de ten opzichte van eerdere rapporten 0,4% hogere MRP niet inzichtelijk.

[19] Randnr. 40 e.v. van bijlage 2 bij het Ontwerpbesluit.
[20] Randnr. 46 e.v. van bijlage 2 bij het Ontwerpbesluit.

PARAGRAAF 6: BETA

79. In het Ontwerpbesluit hanteert de ACM voor het berekenen van de activa bèta een vergelijkingsgroep van 10 bedrijven met activiteiten die *"zoveel mogelijk overeenkomen"* met de gereguleerde activiteiten van GTS.[21]

80. VEMW is echter van mening dat de vergelijkingsgroep die de ACM in het Ontwerpbesluit hanteert bestaat uit bedrijven die niet representatief zijn voor de activawaarde van GTS. Zo bevinden de bedrijven die de ACM in de vergelijkingsgroep gebruikt zich in totaal andere kapitaalmarkten dan GTS.

81. De vergelijkingsgroep die de ACM hanteert leidt daardoor tot een overschatting van de WACC en daarmee tot een afwijking van het vereiste dat afnemers enkel efficiënte kosten inclusief een redelijk rendement in rekening gebracht dienen te krijgen.

82. VEMW is van mening dat bij het berekenen van de bèta slechts gekeken moet worden naar de bedrijven in vergelijkbare situaties. Onderzoek van SIRM (**bijlage 3**) laat zien dat wanneer een betere vergelijkingsgroep wordt gekozen de asset bèta uitkomt op 0,2, in plaats van op 0,35% waarvan de ACM in het Ontwerpbesluit uitgaat.[22]

83. In het Ontwerpbesluit hanteert ACM verder een Vasicek-correctie op de equity bèta's. Bij een dergelijke correctie wordt een zogenaamde 'prior' gebruikt waarmee de geobserveerde waarde wordt aangepast. In het Ontwerpbesluit wordt de 'prior' door de ACM gelijk gesteld aan 1,0 (de gemiddelde bèta van de markt).[23]

84. Het is echter aannemelijk dat er in het geval van GTS sprake is van een risico onder dat van de markt. Daardoor is de 'prior' in het geval van GTS zeer waarschijnlijk lager dan 1. De Vasicek-correctie die de ACM in het Ontwerpbesluit hanteert leidt met andere woorden zeer waarschijnlijk tot een overschatting van de equity bèta's en daarmee van de WACC.

PARAGRAAF 9: CONCLUSIE

85. In het licht van het hetgeen VEMW in dit hoofdstuk heeft aangegeven wordt de ACM verzocht de WACC aan te passen en nader te motiveren.

VI. INPASSING HERNIEUWBARE ENERGIE EN INTELLIGENTE NETTEN

86. Tijdens de voorbereiding van de Ontwerpbesluiten is gesproken over de inpassing van hernieuwbare energie en intelligente netten.

87. VEMW is van mening dat enkel efficiënte kosten die voortvloeien uit de uitvoering van de wettelijke taken via de gereguleerde omzet en de daaruit resulterende tarieven aan de netbeheerder mogen worden vergoed. Bij de inpassing van hernieuwbare energie dient een

[21] Randnr. 62 van bijlage 2 bij het Ontwerpbesluit. Zie ook randnr. 59 e.v. van bijlage 2 bij het Ontwerpbesluit.
[22] Zie randnr. 77 van bijlage 2 van het Ontwerpbesluit.
[23] Randnr. 73 e.v. van bijlage 2 van het Ontwerpbesluit.

duidelijk onderscheid te worden gemaakt in kosten die toegerekend kunnen en moeten worden aan de business case van de invoeder en kosten die toegerekend kunnen en moeten worden aan de business case van de netbeheerder. Bovendien moeten duidelijk zijn om welke kosten het gaat.

88. Het voordeel van intelligente netten komt door verschillende batenposten tot stand waarbij de lagere kosten voor netaanleg en lagere kosten voor centraal productievermogen de twee belangrijkste zijn. Daar waar kosten voor intelligente netten als innovatie dus leiden tot een efficiënter kostenniveau – volgens onderzoek 5-20% reductie van netkosten – mogen die kosten ook meegenomen worden in de toegestane omzet van de netbeheerder.

89. VEMW verzoekt de ACM in de methode van regulering duidelijker vast te leggen dat alleen de kosten die aan kant van de netbeheerder liggen aan de netbeheerder toegerekend mogen worden en dat niet ook kosten die aan de kant van de producenten liggen aan de netbeheerder toegerekend mogen worden.

VII. ADMINISTRATIEVE GRONDSLAGEN INFORMATIEVERZOEKEN

90. In het Ontwerpbesluit verwijst de ACM bij het bepalen van de kosten van GTS naar zijn boekhoudkundige principes zoals vastgelegd in de Administratieve Grondslagen Informatieverzoeken voor GTS.[24] Blijkens het Ontwerpbesluit heeft de ACM de AGI opgesteld ten behoeve van het bepalen van de kosten van GTS en moet GTS haar financiële gegevens conform de door de ACM opgestelde AGI aan de ACM verstrekken.[25]

91. VEMW constateert dat de AGI niet openbaar is en verzoekt de ACM de AGI alsnog, in ieder geval bij de publicatie van het methodebesluit, openbaar te maken.

92. Het niet openbaar maken van de AGI verhoudt zich naar het oordeel van VEMW onder meer niet het vereiste van een transparante methode van reguleringen van transparante tarieven zoals dat is opgenomen in artikel 13 Verordening 715/2009/EG.

VEMW verzoekt de ACM bij de verdere besluitvorming omtrent het Ontwerpbesluit rekening te houden met de door VEMW in het kader van deze zienswijze gemaakte opmerkingen.

De ACM wordt verzocht deze brief te registreren als een zienswijze als bedoeld in artikel 3:16 AWB met betrekking tot het in de aanhef van deze brief aangeduide ontwerp-methodebesluit.

Wij verzoeken u ondergetekenden nader te informeren over de voortgang van de besluitvorming met betrekking tot het in deze brief aangeduide methodebesluit.

[24] Zie randnr. 128 van het Ontwerpbesluit.
[25] Zie ook p. 64 van het Ontwerpbesluit.

Hoogachtend,

mr. M.R. het Lam
(gemachtigde)

mr. M.L. Pigmans
(gemachtigde)

BIJLAGEN

1. Brattle, GTS's RAB and implications for tariffs and investment', november 2007;
2. Oxera, 'The opening regulatory asset base of the Dutch gas transmission system', april 2011;
3. SIRM, Ontwerpmethodebesluiten Elektriciteit en Gas 2013, 11 juni 2013.

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BIJLAGE 1

GTS'S RAB AND IMPLICATIONS FOR TARIFFS AND INVESTMENT

NOVEMBER 2007

CONFIDENTIAL

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Contents

1 Introduction and Summary

The Dutch Ministry of Economic Affairs (the *Ministerie van Economische Zaken* or EZ) will shortly issue a consultation on a new regulatory framework for Gas Transport Services (GTS). The consultation will seek views on, among other things, the value of GTS's initial Regulated Asset Base or RAB, from which DTe could derive tariffs. In her letter to the Dutch parliament, the Minister of Economic Affairs has already put forward a suggested RAB of €6.4 billion.[1] We have been retained by BP to estimate a reasonable range of RABs, and determine if the Minister's suggested RAB falls within this range. We also discuss the effect that alternative estimates of the RAB could have on GTS's revenue and ability to invest, and whether inefficiencies could arise.

It is important to note at the outset that, for a state-owned firm, there is no one 'correct' value of the initial RAB, but rather a range of reasonable values that could reflect different policy goals and considerations of 'fairness'. We assess the reasonableness of alternative initial RABs using the criteria of efficiency, equity and government policy:

- Efficiency: tariffs should promote efficient use of the network;
- Equity: consumers should not be charged 'too much'; network owners should earn a fair return on their investment;
- Government policy: the government may want to set the RAB and tariffs to attract larger transit volumes (the "gas roundabout" concept).

Alternative RABs

We have considered several alternative approaches to setting GTS's RAB:

- Apply the 'NPV test'. The NPV test refers to the idea that the regulator should set tariffs so that the present value of capital charges (depreciation and allowed return on capital) associated with a pipeline should not exceed the present value of the capital cost of the pipeline. In essence it is simply a requirement that price equal average cost. Setting the RAB by reference to the NPV test would require the authorities to consider the revenue GTS has earned to date, and the remaining revenue required for GTS to recover the value of its investments.
- Base the RAB on GTS's depreciated book value (prior to revaluation); If Gasunie had set notional gas transport tariffs equal to depreciation plus a reasonable return on capital (how tariffs are set under many regulatory regimes) the depreciated book value of Gasunie's assets would be the amount of the original investment left to recover.
- We have updated DTe's 2001 estimate of GTS's RAB by accounting for investment and inflation since that date.

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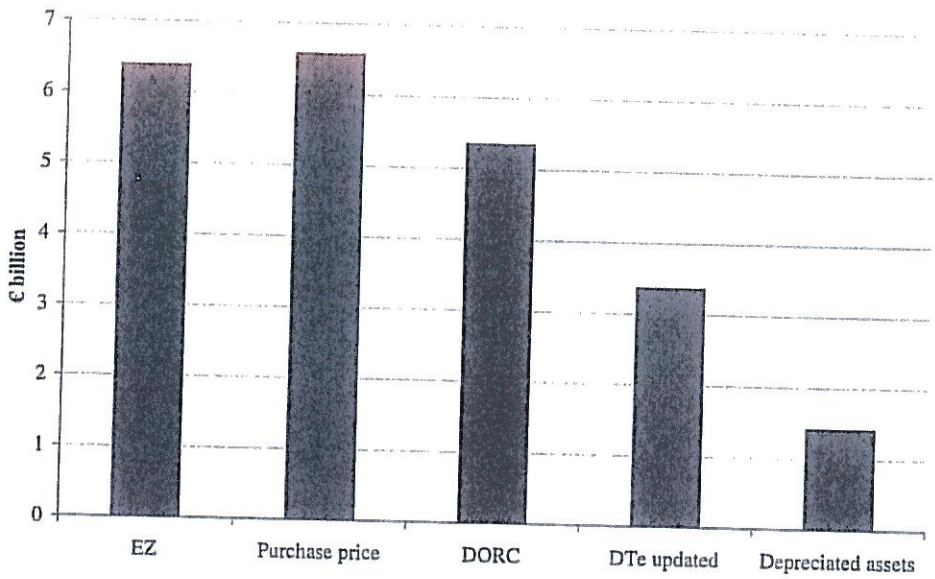
[1] Letter from the Minister of Economic Affairs to the Lower House of Parliament (the *Tweede Kamer*) March 29th 2007, '*Voorzienings- en leveringszekerheid energie*' 29 023 No.37.

- Use Depreciated Optimized Replacement Cost; The DORC methodology sets an upper bound for the RAB, since it is designed to set tariffs that will just dissuade inefficient new pipelines and by pass of the existing network.
- Base the RAB on the 2004 price paid for 50% of Gasunie by the Ministry of Finance.

Figure 1 summarises the results of the approaches we have considered, and compares this to the Minister's proposed RAB.

Figure 1: Summary of alternative RAB estimates



The RAB and tariffs

The Minister has stated that she may raise tariffs above cost-reflective levels, if such tariffs are so low as to risk 'flooding' the Netherlands with gas and threatening the ability to transport gas for Dutch consumers (the so-called 'Jepma effect'). This statement implies that EZ might apply a high RAB to avoid low tariffs and problems with transit gas. We note that recent increases in transit volumes have not threatened security of supply, but have simply prompted GTS to build more capacity via its open season process. The concerns related to the Jepma effect have not materialised in practice.

Moreover, the effect of the initial RAB on tariffs is mitigated by the effect of new investments (which will likely attract higher capital charges and hence have a disproportionate effect on allowed revenue) and GTS's relatively high operating costs. For example, we estimate that choosing an initial RAB about 80% lower than the Minister's suggested RAB would result in average tariffs that are only 33% lower by 2012.

Tariffs and investment

We estimate that, even with a relatively low initial RAB of €1.4 billion, GTS would still be able to fund its planned 'open season' investments without reaching an excessive level of gearing

relative to the other European network businesses. The need for investment does not seem to justify a higher RAB.

Conclusions

- Efficiency considerations imply that the RAB should not in general exceed the DORC. *Our estimate of DORC is €5.4 billion.* Although we have had to rely on limited data, our estimation methodology is conservative (i.e., likely to be an over-estimate), and the figure is therefore likely to be generous upper bound to the RAB unless there are specific efficiency or equity reasons to choose a higher number.

- *There are no compelling efficiency arguments to choose a RAB higher than the DORC.* If efficiency requires higher tariffs for new capacity then it would appear more equitable (while equally efficient) to set higher charges for new capacity, as is done in the UK, without increasing the overall RAB (i.e., charges for existing capacity could go down to compensate).

- *There is no presumption that the RAB should be based on the price paid by the Ministry of Finance to Exxon and Shell when it bought out their share of GTS.* It is quite normal for regulated assets to trade above their RAB, so revaluing the RAB to the market value risks "double counting". Moreover, the high price paid may well have been justified in the context of the transaction, but there are legitimate arguments for expecting at least part of the "market premium" to be borne by taxation rather than charged to system users.

- The RAB of €6.4 billion suggested in the Minister's letter to Parliament is *beyond the upper bound of reasonableness*, which we estimate at €5.4 billion. It is also significantly above the regulator's (adjusted) estimate of €3.4 billion.

- *There are equity arguments to choose a RAB that is significantly lower than implied by the DORC.* Our analysis indicates that Dutch gas users have already paid for much or all of the costs of the network, and the original shareholders had likely already recovered the value of their investment. A significantly lower initial RAB would therefore be more equitable. It need not compromise GTS's ability to invest, or result in a flood of transit flows or problems with security of supply.

2 Issues in setting the RAB

There is no single "correct" methodology for determining the Regulated Asset Base (RAB). Rather there is a range of reasonable values, reflecting a range of relevant criteria such as efficiency, equity, simplicity and transparency. Here we provide a brief discussion of these criteria, and their implications for alternative methodologies.[2] The next section applies these methodologies to produce a range of estimates for the GTS RAB.

Efficiency

Efficiency implies that tariffs should reflect the long run marginal cost of new capacity. Tariffs above long run marginal cost could motivate construction of private pipelines by third-parties even if this was inefficient (either because it would create socially wasteful 'redundant' pipeline capacity, or because third-parties had higher construction costs or were not able to integrate their pipeline into the GTS network and so missed out on potential "economies of scope"). They could also result in inefficiently low levels of demand for transportation.

For new capacity, tariffs below the long run marginal cost of new capacity could lead to inefficiently high demand for new capacity. They could also be too low to allow for or incentivise efficient levels of investment in new pipeline construction.

A further consideration is that where pipe-to-pipe competition exists, the value of the RAB (and therefore resulting level of tariffs) will influence this competition. Setting the RAB too low or too high can distort competition, in the sense that flows may not go via the efficient route.

Since tariffs derive from the RAB, there are at least two implications for RAB valuation. First, in general the RAB should not exceed the Depreciated Optimised Replacement Cost (DORC). The DORC methodology is designed to produce tariffs that correspond to long run marginal cost.[3] It does so by valuing assets on the basis of what it would cost to efficiently replace them with assets of the same service life.

The second implication involves avoiding tariffs for new capacity that are too low. This can be achieved either by setting tariffs for new capacity on the basis of long run marginal cost. However efficiency does not necessarily require the same approach for existing assets. The RAB as a whole can be *less than* implied by DORC. For example, in the UK new entry capacity is charged at cost via the long-term entry capacity auction methodology, but valuation of existing assets for the purpose of determining the RAB is not based on a replacement cost methodology.

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[2] See also our 2000 report for the European Commission, 'Methodologies for Establishing National and Cross-Border Systems of Pricing of Access to the Gas System in Europe', discussion on pp. 54-55, which addresses many of the same issues. Available at http://ec.europa.eu/energy/gas/madrid/doc-2/methodologies.pdf (as of 31/8/07).

[3] See section 3.4 for details.

Equity

It is generally accepted that on grounds of equity/fairness, the revenues for a regulated monopoly asset should be enough to recover costs, including a fair return on the capital employed, but no higher. Charging below this level implies a partial expropriation of assets.[4] Charging above this level provides an unjustified monopoly rent.

The general implication for RAB valuation methodology is that the RAB should reflect the so-called "NPV test". In essence the NPV test is simply a requirement that the price of gas transportation equals the average cost of providing the service, thus ensuring that the pipeline owner will earn a fair return on its investment. More specifically, the regulator should set tariffs so that the present value of capital charges (depreciation and allowed return on capital) associated with a pipeline should not exceed the present value of the capital cost of the pipeline.[5] Capital charges that are consistent with the NPV test allow the pipeline owner to expect a "fair" return on investment.

The question of fairness can be made more complicated by two factors. First, if the owner of a regulated asset bought it from the original investor at a price different from its original cost, then there is a question of which is more relevant: the historic cost of construction, or the "firm acquisition cost" (i.e., the price paid by the new owner). This is particularly difficult as there is a circularity: the price that the new owner paid will have depended on how it thought that the regulator would react to the purchase.

The implications for RAB valuation are complex, precisely because of this circularity. However, there should not be a generic rule that the RAB should reflect "firm acquisition cost", for a number of reasons.

a. The new owner may be able to earn a higher return from the network than is implied by the RAB, so setting the RAB below firm acquisition cost does not imply that the owner will operate at a loss. Regulated companies in many countries typically trade at a significant premium to their RAB, suggesting that they have a value to investors that is greater than the RAB. Possible explanations include that regulators may set tariffs that provide more than a fair return based on the RAB (e.g., they may over-estimate the cost of capital or the level of taxes paid by the company); that incentive regulation ("RPI – X") allows companies to earn above their cost of capital; or that owning regulated assets has option value or provides some kind of synergistic benefits with other assets. In any case, the implication is that if someone buys a regulated company for more than the RAB, they will not necessarily have lost value. Revaluing the RAB to reflect their purchase price may therefore do no more than provide a "windfall profit" to the purchaser, unless their purchase price was based on a firm and legitimate expectation that the revaluation would occur. There is no automatic case for basing the RAB on the purchase price.

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[4] There is also an issue of "dynamic efficiency" here—future investment will suffer if government lowers tariffs once an investor has sunk its capital into a regulated asset.

[5] For a more detailed description of the NPV test and related matters see our 200 report (cited at footnote 2 above), especially p.52 and Appendix 6.

b. In a market economy, there is no compelling reason for government to guarantee cost recovery for someone purchasing a network firm, except in cases where it has created a legitimate expectation to that effect in advance of the sale. This is quite different from a firm that built a regulated monopoly network. In that case the guarantee of cost recovery is a promise from government not to engage in "hold up", partly expropriating assets once they are sunk. It is also an equitable part of the arrangement whereby regulation will prevent revenues exceeding costs.

c. Resetting the RAB equal to firm acquisition cost creates perverse incentives for someone considering buying a network. To give an extreme example, if the regulator had a rule that whenever a regulated asset is sold, the RAB should be re-valued to equal the sale price then a purchaser could justify paying any price on the grounds that it will be allowed to recover its costs through the tariffs arising from this revaluation.

Second, state ownership introduces new complications because of the overlap between the interests of customers and taxpayers. If the RAB is set above cost but the resulting profits are used to lower taxes then on average customers will be approximately indifferent. Similarly if the RAB is set below cost and taxes are higher as a result. The implication is simply that for a state-owned company considerations of equity have less effect in terms of restricting the choice of methodology.

Simplicity and Transparency

In practice it is also important that the valuation methodology used should be simple and transparent, so as to allow all market parties to understand and react to proposals, and to ensure that the methodology is applied in practice in a correct and neutral fashion. In terms of valuation methodology, simplicity and transparency are the main arguments that would favour the use of historic cost book value in setting the RAB (i.e., valuing assets at historic cost and applying standard depreciation rules, preferably those the company has used historically).

Additional Policy Considerations

For the Netherlands there are at least two specific additional considerations of public policy. First, the government's desire to attract large transit volumes to the Netherlands so as to benefit from economies of scale in network expansion (the "gas roundabout" concept) could argue in favour of a lower RAB[6] than would otherwise be the case, since lower tariffs will create the necessary level of demand to allow for large scale construction (and the resulting economies of scale will give the network lower unit costs, thus allowing them to recover costs from a relatively lower RAB). Second, the claim that excessively low tariffs could lead to such high volumes of transit on the GTS network that supplies to customers are threatened could argue in favour of a higher RAB than would otherwise be the case. We discuss this second issue (the "Jepma effect") in more detail later in section 4.2.

[6] I.e., a RAB that might be higher in absolute terms, but is lower proportionate to the size of the network, e.g. has a lower value for RAB/(throughput capacity).

3 Alternative estimates of the RAB

As the above discussion shows, different relevant criteria provide some degree of support for a number of different valuation techniques for GTS's RAB, including book value, the "NPV test", DORC and valuation based on the purchase price paid by the Dutch government in buying out the 50% Exxon and Shell shareholding in 2005. Here we apply each of these techniques to get values for the GTS RAB.[7] Given the limitations of time and data availability, the estimates we produce should be viewed as approximate and indicative only. In particular, full application of the DORC methodology would require a detailed engineering assessment of the GTS network. Applying the NPV test in full would also require a "backcasting" exercise to produce hypothetical separate accounts for GTS many years back into the past (when essentially the only available accounts until 1/1/2005 are for the vertically integrated Gasunie company).

As background to this exercise, we provide in section 3.1 a brief overview of recent determinations of the GTS RAB and related figures. We also provide in section 3.6 an update of the RAB value arising from DTE's 2001 determination.

3.1 Recent Determinations of GTS Asset Value

Below we summarise recent determinations of GTS asset value:

- Nederlandse Gasunie N.V. (Gasunie) reported tangible fixed assets for 31/12/01 of €0.99 billion in its 2002 Annual Report, based on historic cost valuation and a depreciation period for pipelines of 20 years.[8]
- In 2001 DTe published a determination setting GTS's RAB as of 1/1/2002 at €2.4 billion.[9] The determination was based on historic cost valuation and a depreciation period for pipelines of 50 years.[10]
- In November 2004 Ministry of Finance agreed to pay €2.78 billion for Shell and Exxon's 50% share of Gasunie, excluding the gas supply business.[11] The gas supply business was split off as Gasunie Trade & Supply, effective as of 1/1/2005.
- In its 2004 Annual Report Gasunie reported tangible fixed assets for 31/12/04 of €0.94 billion.[12]

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[7] In terms of timing, the initial RAB decided by EZ would apply to the new tariff methodology, which we assume would begin in 2008. Hence, the relevant initial RAB is as of 1/1/2008. From the Minister's March 2007 letter it is not clear if the proposed RAB is as of this date, or is a 2007 RAB that would be adjusted for any investments by GTS in 2007. We assume the former in this report. In our assessment below we estimate all RABs as of 1/1/2008.

[8] Nederlandse Gasunie N.V. 2002 Annual Report p.28. Depreciation period from 2004 Annual Report p.51.

[9] DTe *Besluit* 100554/15, 20th December 2001.

[10] The information on how DTe arrived at their RAB estimate is from 'Regulation of European gas transmission system operators', Frontier Economics, January 2005.

[11] Ministry of Economic Affairs Press Release 1/11/2004.

- Following the purchase by the state, Gasunie's tangible fixed assets (in effect GTS's gas transport network and ancillary services assets) were re-valued by Gasunie at €5.1 billion as of 31/12/2005.[13]

3.2 The NPV test

The NPV test requires that the pipeline recover its costs over its useful life. Accordingly, when setting the RAB at some point when the pipeline has been in service for some years, the regulator must consider the revenues earned by the pipeline before this point, to determine how much revenues are required in future for the pipe to recover its costs. For example, suppose a pipeline half way through its useful life had recovered 70% of its costs, then it only requires 30% of its costs over the remaining half of its life.

Ideally one would therefore "reconstruct" hypothetical regulatory accounts for GTS, using data on investments, annual revenues and operating costs to estimate how the ratebase should have grown over time. The difference between annual revenues and operating costs would be viewed as the return on capital (i.e., depreciation plus "allowed return"[14] on the ratebase). In years when the overall return exceeded the allowed return on the ratebase, the difference would be counted as depreciation and next year's ratebase would fall accordingly. In years when the overall return was less than the allowed return, there could be negative depreciation (i.e., the firm would be viewed as having under-recovered in that year and a kind of "IOU" would be added to the ratebase in the form of negative depreciation).

In practice we do not have the data to carry out this exercise. However, publicly available data provides some indication of the network's level of capital recovery over time, and suggests that GTS historically has earned more than its cost of capital on its assets.

First, in its 2004 Annual Report Gasunie provided separate figures for the network business. Based on that data we estimate that in 2003 and 2004 GTS made a return of nearly 100% on its assets (see Table 1). This is an extraordinarily high return, nearly 20 times the return of 5.5% proposed by EZ. Even if the RAB were as high as the €6.4 billion suggested by the Minister, the figures shown in Table 1 would represent a very high level of return (approx. 15%). Note that our calculation underestimates GTS's return, since we use deprecation and operating costs for the whole of Gasunie's business, not just GTS (separate depreciation and operating costs for GTS are not available). Since the costs for Gasunie as a whole are higher than the costs for GTS alone, our methodology will underestimate GTS's pre-tax profit.

Gasunie does not report separate revenue for its pipeline business in other years, so it is not possible to calculate historic returns for many of the previous years. But there is no good reason to believe that Gasunie would have earned very low returns in previous years.

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[12] Nederlandse Gasunie N.V. 2004 Annual Report p.48.

[13] Nederlandse Gasunie N.V. 2005 Annual Report p.74.

[14] Based on an estimate of the appropriate cost of capital, using standard financial techniques such as the Capital Asset Pricing Model (CAPM).

Table 1: Estimated return on GTS's assets for 2003 and 2004

			2004	2003
GTS Revenue	[1]	GU 2004 Annual Report p.58	1,400	1,400
Depreciation	[2]	GU 2004 Annual Report p.48	118	121
Operating costs	[3]	GU 2004 Annual Report p.48	384	366
Pre-tax profit	[4]	[1]-[2]-[3]	898	913
Tangible assets	[5]	GU 2004 Annual Report p.48	944	920
Pre-tax return on tangible assets	[5]	[4]/[5]	95%	99%

Notes:

Depreciation and operating costs are for all of Gasunie's businesses, including Trade & Supply. Therefore our calculation will underestimate GTS's profits, since we allocate to it some costs from other Gasunie businesses.

Second, we know that historically N.V. Nederlandse Gasunie reported profits every year, of around NLG 80 million (about €35 million), until the *Gasgebouw* was restructured in 2004. Since profit is reported *after* depreciation is accounted for, this implies at a minimum that the gas transport business had historically recovered its (accounting) depreciation costs.[15]

Clearly to have an overall after-tax profit of some €30 million with a pre-tax profit of over €350 million on its network, Gasunie must have operated the non-network part of its business at a significant loss. It could be argued therefore that the high returns for the gas transport business seen in Table 1 do not reflect large profits for Gasunie as a whole, because the high returns in gas transport were in some sense cross-subsidising the gas supply business. However this conclusion is misleading, because losses in gas supply by Gasunie reflect an artificially high price paid to purchase gas from NAM, which was also part of the *Gasgebouw*. Without greater transparency about the historical arrangements it is difficult to draw firm conclusions, other than that Gasunie's own accounts report extraordinarily high returns to the network.

Based on the available evidence we therefore conclude that it is likely that GTS has historically recovered its depreciation costs in nominal terms and has earned a return well in excess of its cost of capital. This would imply that the remaining costs to recover are very low. The level of excess returns shown above would imply that according to the principles of the NPV test the RAB could even be zero, as the excess returns may have already paid for the remaining un-depreciated assets. In other words, users of the Dutch gas transport network have already paid for its costs, and probably more. We conclude that, based on the idea of the NPV test, GTS's financial history provides good arguments for a rather low value of the RAB.

[15] Gasunie was originally established to market gas from the Groningen field. Gasunie's cost of gas purchases (i.e. the money it paid to NAM, the upstream producer) were calculated to leave it with a profit of around NLG 70 million per year – that is, the cost of gas was an output of the accounts, and the profit an input. This structure ensured that the profits from Groningen gas sales were taxed upstream, and was a feature of the Dutch Gasgebouw.

3.3 Depreciated historic cost

Nederlanse Gasunie N.V. reports tangible fixed assets for 31/12/04 of €0.94 billion, based on depreciated historic cost. We note that the €0.94 billion of assets includes assets of non-regulated businesses, such as the gas supply business and Gasunie's engineering business. However, we expect that the fixed assets of these businesses are relatively small compared to GTS, although we note that using €0.94 billion is an overestimate of GTS's remaining fixed assets.

We have taken the assets at end 2004[16] and inflated this to reach a RAB for 1/1/2008.[17] We do not deduct further depreciation from the assets, which will also slightly over-estimate the RAB. We have also added on investments made or planned for the period 2005 to 2007 inclusive. This results in an estimate of the initial RAB of €1.4 billion.

Table 2: RAB estimate based on GTS's depreciated asset value

			Money of the day	01/01/2008 money
Gasunie tangible fixed assets end 2004, € mln		[1] See note	944	
Inflation		[2] Assumed	2%	
N.V. Nederlanse Gasunie assets end 2004, 2008 value, € mln		[3] See note		1,002
GTS Investments, € mln				
	2005	[4] See note	87	91
	2006	[5] See note	242	250
	2007	[6] See note	90	91
RAB 1st Jan 2008, € mln		[7] See note		1,434

Notes:
[1]: N.V. Nederlandse Gasunie 2004 Annual Report
[3]: [1] inflated at 2% per year for three years.
[4]-[6]: From Gasunie N.V 2006 Annual Report p.27. 2008 values derived by inflating values using rate in [2]. For 2006 (Row [5]) GTS state that two-thirds of €367 million was invested in the pipeline network and accompanying installations - we assume that this excludes the BBL pipeline.
[6]: Estimate based on historic levels of investment.
[12]: Sum [3]-[6]

3.4 Depreciated Optimized Replacement Cost

In the absence of detailed engineering studies we cannot determine how a "replacement" network could be optimised relative to the existing GTS network. Our methodology therefore involves in effect valuing the existing network at depreciated replacement cost, and will give a figure that by definition is more than or equal to the true DORC (since optimising the network would give lower costs). Hence our calculation will tend to overestimate the RAB: it would be more correct to say that we have calculated the Depreciated (Unoptimized) Replacement Cost.

[16] Using the fixed assets at the end of 2004 is appropriate because after this date the assets were re-valued due to the Dutch State's purchase of the pipeline business (discussed in more detail below).

[17] Since we subsequently apply a real rate of return, we need a RAB in real terms, hence we need to inflate the historic value of the RAB.

GTS state that the current value of the investments made in the pipeline network between 1963 and 2004 is €11.8 billion.[18] To estimate the DORC, we need to know when the investments were made, so that we can properly depreciate the assets. In the absence of detailed information we have made some simplifying assumptions that are described in Appendix III (and which will tend to further over-estimate the DORC). We assume a depreciation period of 55 years, as proposed by the Minister in her letter to Parliament. Note that this is a conservative assumption, in the sense that long depreciation period will give a higher value for the DORC. Our calculation yields a RAB of €5.4 billion. Appendix III shows the details of our calculations.

3.5 Purchase price of GTS

The price that the Dutch State paid for Gasunie (in effect GTS) could provide a basis for the RAB. The purchase price of €2.78 billion implies a value for Gasunie's equity of €5.56 billion at the time of the purchase. Gasunie has around €0.2 billion in long-term liabilities (debt), implying a total enterprise value of around €5.8 billion as of 01/01/2005. This sum is another possible basis for the RAB. In Table 3 we add on estimated investments made after 01/01/2005 to reach an estimated RAB of €6.6 billion as of 01/01/2008.

Table 3: RAB based on 2005 purchase value

			Money of the day	01/01/2008 money
Gasunie enterprise value 01/01/2005, € mln		[1] See note	5,800	
Inflation		[2] Assumed	2%	
N.V. Nederlanse Gasunie assets 01/01/2005, 2008 value, € mln		[3] See note		6,155
GTS Investments, € mln				
	2005	[4] See note	87	91
	2006	[5] See note	242	250
	2007	[6] See note	90	91
RAB 1st Jan 2008, € mln		[7] See note		6,587

Notes:
[1]: N.V. Nederlandse Gasunie 2004 Annual Report
[3]: [1] inflated at 2% per year for three years.
[4]-[6]: From Gasunie N.V 2006 Annual Report p.27. 2008 values derived by inflating values using rate in [2]. For 2006 (Row [5]) GTS state that two-thirds of €367 million was invested in the pipeline network and accompanying installations - we assume that this excludes the BBL pipeline.
[6]: Estimate based on historic levels of investment.
[12]: Sum [3]-[6]

3.6 Updated DTe estimate

In December 2001 DTe estimated GTS's RAB as of 1/1/2002 at NLG 5.35 billion, equivalent to €2.43 billion.[19] DTe arrived at this estimate by using the historic book value of the assets (i.e. not

[18] N.V. Nederlandse Gasunie 2004 Annual Report p.53.

[19] DTe *Besluit* 100554/15, 20th December 2001.

adjusted for inflation) and applying a depreciation term of 50 years.[20] Hence, the DTe estimate of the RAB is higher than the depreciated book value above, since Nederlandse Gasunie N.V. used a shorter depreciation term of only 20 years. Since Nederlandse Gasunie N.V. recovered all its depreciation costs, the DTe's estimate is likely to overestimate the RAB with respect to the NPV test. In other words, the DTe's estimate will assume some capital costs have not yet been recovered, when in practise they have been.

In Table 4 we have updated DTe's 2001 RAB estimate, to account for inflation and investments made since the DTe's estimate. This results in a RAB of €3.4 billion for 1/1/2008.

Table 4: Update of DTe's 2001 GTS RAB estimate

			Money of the day	01/01/2008 money
DTe RAB, 1st Jan. 2002, NLG mln	[1]	See note	5,350	
NLG/€ exchange rate	[2]	ECB	2.2	
DTe RAB, 1st Jan. 2002, € mln	[3]	[1]/[2]	2,432	
Inflation	[4]	Assumed	2%	
DTe RAB, 1st Jan. 2002, 2008 value € mln	[5]	See note		2,739
GTS Investments, € mln				
2002	[6]	See note	70	78
2003	[7]	See note	90	98
2004	[8]	See note	35	38
2005	[9]	See note	87	91
2006	[10]	See note	242	250
2007	[11]	See note	90	91
RAB 1st Jan 2008, € mln	[12]	See note		3,384

Notes:
[1]: DTe Besluit 100554/15
[5]: [3] inflated at 2% per year for six years.
[6]-[11]: From Gasunie N.V 2006 Annual Report p.27. 2008 values derived by inflating values using rate in [4]. For 2006 (Row [10]) GTS state that two-thirds of €367 million was invested in the pipeline network and accompanying installations - we assume that this excludes the BBL pipeline.
[11]: Estimate based on historic levels of investment.
[12]: Sum [5]-[11]

3.7 Maintaining the Dutch Investment Environment

Our analysis above suggests that at most, the Dutch pipeline network would have about €1.4 billion of costs to recover. But the price paid by the Dutch state implied a value of €5.8 billion. This is not to say that the Ministry of Finance overpaid for GTS. Rather the Dutch State faced a choice. Either it could buy GTS at the price implied by its recent tariffs and revenues. Or it could apply the logic of the NPV test, claim that the shareholders had recovered most of their costs, cut tariffs and buy the business at a price closer to the depreciated book value.

[20] The information on how DTe arrived at their RAB estimate is from 'Regulation of European gas transmission system operators', Frontier Economics, January 2005.

If the Netherlands had followed the latter choice, this could have looked like the government was expropriating the private shareholders' assets. Instead, by paying the value implied by the pre-liberalisation tariff regime, the government respected the expectations of the private shareholders, and helped to maintain an attractive investment environment in the Netherlands. The amount paid for GTS above the depreciated book value can be thought of as the price of maintaining the Netherlands reputation for respecting investors' expectations, as it restructures the gas industry for market liberalisation. In a sense, the issue is similar to the issue of 'stranded costs' that occur in many transitions to a liberalised market.

The relevant question then is – who should pay for maintaining the investment environment in the Netherlands? If GTS's RAB is set at less than €5.8 billion, the Dutch government must write off the difference between the RAB and the purchase price. The cost of the write off would be met through general taxation – *i.e.* most people in the Netherlands. Alternatively, the government could set GTS's RAB at €5.8 billion (or higher) and avoid a write off. This would mean that users of the Dutch gas network would bear the costs of maintaining the investment environment.

There is an argument that the cost of the write-off should be recovered through general taxation: since everyone in the Netherlands benefited from maintaining the investment environment, it seems fair that everyone should pay for it. Recovering the cost from network users might be construed as inequitable, since the costs are concentrated on a smaller group while the benefits are more widespread. Therefore, there is an equity argument for setting a RAB close to €1.4 billion (the RAB based on depreciated assets), since this means the beneficiaries of the policy of maintaining the Dutch investment environment bear its costs.

On this basis, setting GTS's RAB above €5.8 billion would appear even less fair. Gas users would pay not only the cost of maintaining the Dutch investment environment, but an additional cost for a network they have largely already paid for. This argument therefore implies that on an equity basis €5.8 billion would be the upper limit of reasonableness for GTS's RAB, and setting a significantly lower RAB, closer to €1.4 billion, would be more equitable. We would recognise however in assessing this argument that it is for government to decide on the appropriate levels and structure of taxation, which involve many complex economic and political issues.

3.8 Summary of alternative RAB estimates

We summarize the different RAB estimates in Table 5 below.

Table 5: Alternative GTS RAB estimates

Method	01/01/2008 RAB, € mln
DORC	5,367
Depreciated assets	1,434
EZ	6,400
DTe updated	3,384
Purchase price	6,587

4 Implications of alternative RABs for tariffs and investment

In this section we analyze the effect that alternative revenues could have on GTS's allowed revenues, and hence by extension the effect on tariffs and GTS's ability to fund new investment.

4.1 Model of required future revenues

We have constructed a simple financial model that calculates GTS's allowed revenues for a given RAB (as of 1/1/2008), taking into account GTS's investment plans and the depreciation and allowed rates of return mentioned in the Minister's letter. Table 6 illustrates the allowed revenues for the lowest initial RAB we have calculated (column [A]), and for the Minister's proposed RAB of €6.4 billion (column [B]). Appendix I shows our more detailed calculations.

Our calculations illustrate that allowed revenues (and hence tariffs) do not fall dramatically, even with a much lower RAB. For example, if we set a RAB based on Gasunie's depreciated assets, it would be 22% of the RAB proposed by EZ. But by 2012 allowed revenue (and hence tariffs) would be 67% of the revenue if the RAB had been set at the level proposed by EZ level (Table 6 explains how the 67% is derived). This implies that even using a relatively low RAB need not dramatically lower tariffs.

Allowed revenues for most regulated pipelines consists of money for covering operating costs, deprecation and a return on capital. Accordingly, in the case of Gasunie there are two factors which reduce the effect of the initial RAB on tariffs in 2012 (and future years). First, Gasunie has relatively high operating costs (columns [A] and [D] in Table 6). Most likely these reflect large transit volumes, and the demand for high cost of gas-quality conversion (an energy intensive process which involves the separation of nitrogen from air). These costs must be recovered and are added to the allowed revenues. Hence high operating costs form a large part of the allowed revenue, and these do not vary with the choice of initial RAB.

Second, Gasunie is planning to invest €1.3 billion in new pipelines between 2009 and 2012 (the so-called open season). According to the Minister's proposal, these new investments will be allowed higher capital charges, and hence have a disproportionate effect on allowed revenues. Therefore, regardless of the RAB at the beginning of 2008, the return on capital on open season investments add significantly to Gasunie's required revenue.

Table 6: Estimated allowed revenues (nominal, € mln) under different initial RAB assumptions

	Allowed revenue, € mln						Ratio
	Basis for RAB: Depreciated assets (€1.4 bln)			Basis for RAB: EZ (€6.4 bln)			
Year	Operating costs [A] Table 8	Capital allowances [B] Table 8	Total [C] Table 8	Operating costs [D] Table 9	Capital allowances [E] Table 9	Total [G] Table 9	[H] [C]/[G]
2012	478	285	763	478	661	1,139	67%

4.2 The Jepma effect

In her letter, the Minister stated that she would consider raising tariffs above a cost-based rate, if cost-based tariffs were so low that the demand for transit flows could increase to a degree which threatens domestic Dutch gas supplies.[21] The Minister specifically cites the 'Jepma effect', after a report by Professor C.J. Jepma[22] which originally developed the theory that low transit tariffs could flood the Dutch market and threaten security of supply. Specifically, the concern is that the demand for transit capacity could leave insufficient capacity for Dutch gas users.

However, developments in the gas market over the last few years have shown that the theoretical concerns expressed in the Jepma report appear to be unfounded in reality. Gas flows on the GTS system to other countries have increased from 44.5 bcm in 2003 to 51.8 bcm in 2006. Since there are restrictions on Dutch gas exports, the majority of this 7.3 bcm/year increase is presumably transit flows. Yet there have been no reported issues with gas transport to domestic Dutch customers.

The GTS network has become increasingly congested. But rather than threaten domestic supply, GTS has responded by holding an open season, and now plans to increase capacity, specifically for transit gas. The response to increased transit has been a move to increase capacity, rather than domestic gas supply disruption. Although it will take some years for the open season to produce new capacity, to our knowledge there is no objective evidence of a 'Jepma' problem in the immediate future.

We also note that, even if the Minister were concerned with a 'Jepma effect', there are regulatory solutions that do not depend on increasing tariffs. First, GTS could simply reserve the necessary amount of transport capacity to ensure security of supply for domestic Dutch customers. This would appear to serve a legitimate public interest and we doubt that it should be construed as discriminatory—it seems analogous to the rule in Belgium that reserves the limited Belgian storage capacity to ensure security of supply for domestic Belgian customers. We understand that DTe has proposed such a solution.

4.3 Tariffs and investment

GTS plans to invest €1.3 billion between 2009 and 2012 as part of the 'open season' process to increase transit capacity. This amounts to an average investment of about €325 million per year. We have calculated GTS's ratio of debt/to RAB, if it had an initial RAB of €1.4 billion (based on the depreciated assets). Our calculations illustrate that GTS could fund its investments by borrowing without a dangerously high level of gearing. Column [H] of Table 7 illustrates that the resulting debt/RAB ratio would be at most 34%. A recent paper by the UK's energy and water regulators recently concluded that the average gearing for network companies in the UK was 60%, with several firms having a gearing of greater than 75%.[23] GTS's gearing would be well below this

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[21] *Loc. cit.* footnote 1. Translation from Dutch to English provided by BP.

[22] Prof. Dr mr C.J. Jepma, *Gaslevering onder druk: invloed van de Richtlijnen van de DTe op de Nederlandse gasstromen* (April 2001).

[23] 'Financing Networks: A discussion paper' Ofwat and Ofgem, February 2006 ¶20 p.12.

average level, even with a relative low initial RAB. UK firms provide a good benchmark for what is an efficient or acceptable level of gearing, as the network firms are privatised and are therefore well-incentivised to finance themselves efficiently.

Table 7: Estimate of Debt/RAB

Year	Total allowed revenues [A] Table 8	Operating expenses [B] Table 8	Cash left for investment [C] [A]-[B]	Investments [D] Table 8	Borrowing requirement [E] [D]-[C]	Cumulative debt [F] [E] + [F]y-1	RAB [G] See note	Debt/RAB [H] [F]/[G]
2009	608	478	130	500	370	370	1,736	21%
2010	669	478	191	500	309	679	2,018	34%
2011	725	478	247	325	78	758	2,412	31%
2012	763	478	285	325	40	798	2,791	29%

Notes:
[D]: For 2008 we assume investment of €90 million based on GTS's past investment record. Annual investment between 2009 and 2012 inclusive is €1.3 billion (the 'open season' investments) divided by 4 plus, plus 50% of €350 million per year in 2009 and 2010 to allow for investment in gas storage.
[G]: Average of SOY and EOY RAB from Table 8, inflated to money of the day (middle of year) at 2% per year.

We note that Gasunie issued €1 billion of debt in 2006, but will have no other outstanding debt at the end of 2007.[24] However, we do not include the €1 billion of debt in our calculation above. Either the money has been borrowed to fund non-regulated investment (in which case it would not appear in GTS's regulatory accounts) or, if it was borrowed partially to fund regulated investments, the regulator would only allow the amount required to appear on the regulatory accounts at the time that it is needed (as in Table 7). Our case is conservative, in that we assume Gasunie's planned gas storage investment will be regulated, and hence appear in the regulatory accounts.

Our calculations are necessarily approximate; a much more detailed assessment would be required before setting the final RAB. But our calculations seem to indicate a much lower RAB that that proposed by the Minister is consistent with acceptable levels of gearing.

[24] N.V. Nederlandse Gasunie 2006 Annual Report p.88.

Appendix I : Note on DORC

This note explains the economic logic behind using DORC as an upper bound on the ratebase, including a brief explanation of why it is right to depreciate (i.e., to use "DORC" not "ORC").

If the charge for using an asset is set above its replacement cost then there is a risk of inefficient entry. Consider a hypothetical pipeline that is about to go into operation. Assume for simplicity's sake that the pipeline is the right size to meet all demand. Once the pipeline has been built, it represents a sunk cost. Entry is therefore inefficient however low the entrant's costs: the existing pipeline provides all needed services, and building a second pipeline will therefore simply add cost without producing additional value.

To prevent this inefficient entry it is sufficient to set tariffs such that the maximum revenues an entrant can earn are no more (in NPV terms) than its costs.

Instead of thinking directly about tariffs, it is convenient to think in terms of the Regulatory Asset Base (RAB). Under standard regulatory accounting, tariffs are derived from the RAB in such a way that at any point in time, the NPV of future revenues (net of operating costs) for a given asset, over the remaining life of that asset, is equal to its RAB.

If an asset had an infinite useful life (and therefore no depreciation), preventing inefficient entry could be done simply by ensuring that at any point in time the RAB was no greater than the costs of any entrant.[25] This could be done by periodic revaluation of the RAB. Then the entrant would know that even if it entered and took 100% of business from the existing pipeline by offering tariffs equal to the incumbent's (or the incumbent's minus a very small amount), its revenues could not do more than cover its costs.

In these circumstances (and still assuming infinite length of useful life), a necessary condition for efficiency therefore is that the RAB is never above ORC. We should recognize that this argument involves some simplifying assumptions:

1. It assumes that the market is contestable, in the sense that an entrant could sign up all existing demand on long-term contracts in advance of sinking the cost of its pipeline. In reality this will often be difficult or impossible.[26] As a result, entry is more difficult and even tariffs above the DORC level might not induce entry. Once both pipelines are in the ground, competition between the two for customers who have not signed long-term contracts could cause prices to drop down to short run marginal costs, causing both to lose money.

2. There is a related issue concerning economies of scope. Suppose that a network provides transportation services from points A to B and from points C to D. The joint

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[25] Note that requiring the RAB to be no higher than the lowest cost of *any* entrant is the same as requiring it to be no higher than the Optimized Replacement Cost (ORC), since the entrant with lowest costs will by definition build the optimized replacement asset.

[26] Partly because existing customers may already have long-term contracts with the incumbent, partly because of "transactions costs" that make it impractical to sign up every present and future customer.

cost of providing both services will typically be lower than the individual cost of providing either. Suppose that in this case each service has stand-alone total cost of 100, while the combined cost of the two services is 180 (all costs in NPV terms). Then capping the RAB at 180 is necessary if there is a concern that an entrant might replicate the whole network. However, more realistically the concern will be at most that an entrant might replicate one of the services. A RAB of 200 would then be enough to prevent inefficient entry.

These two points both imply that it is probably possible to charge some amount above ORC without in practice incurring a significant risk of inefficient entry. The incumbent could in principle enjoy an "incumbency rent" or return to the "first-mover's advantage".

Nonetheless, ORC remains a useful benchmark for a number of reasons:

- Setting tariffs above ORC leads to unnecessary static inefficiency, i.e., a reduction in demand for transportation services that could be provided at cost less than their value to the user.
- General considerations of equity would argue against allowing the incumbent to earn a rent of this kind (although equity considerations are best seen in relation to the overall profitability of the pipeline).
- Estimating ORC is already in practice quite complex, and attempting to estimate in addition the size of this incumbency rent would add to the difficulty.

Depreciation

Allowing for a finite asset life adds technical complexity, but does not alter the underlying economics. To see the effect of finite asset life it is simplest first to suppose that the discount rate is zero, and also that there are no operating costs: the tariff is therefore just equal to depreciation. Imagine an asset of cost €100, with constant annual volumes and a 20 year lifetime (and assume also straight line depreciation). Suppose the asset is now ten years old, and technological progress means that the replacement cost is now just €80. If we set the RAB of the existing asset at €80 then the tariffs over the remaining ten years of that asset will be €8/yr. However a tariff of €8/yr over 20 years will give €160. An entrant who built a duplicate pipe would therefore earn a 100% profit over the lifetime of its investment. To prevent inefficient duplication, the tariff has to be just €4/yr, which is achieved by applying ten years depreciation and so setting the RAB at €40.

The realistic case involves a positive discount rate, but it is simple to check that the underlying principle remains: applying depreciation gives the right tariff level to prevent inefficient duplication.

Appendix II : Allowed revenue calculations

Table 8: Calculation of GTS's allowed revenues using Depreciated Assets as initial RAB

Inflation	[1]	Assumed	2%
Return, old assets	[2]	EZ	5.5%
Return, new assets	[3]	EZ	7.0%
Depreciation, old assets, years	[4]	EZ	55
Depreciation, new assets, years	[5]	EZ	20

	Old Assets					New Assets							Totals			
Year	RAB SOY [A] See note	Depreciation [B] $[A]_{2008}/[4]$	RAB EOY [C] [A]-[B]	Return on capital [D] [2]x[A]	Capital allowances [E] [D]+[B]	RAB SOY [F] $[J]_{y-1}$	Investments Nominal [G] See note	Investments Real [H] See note	Depreciation [I] See note	RAB EOY [J] [F]+[H]-[I]	Return on capital [K] [3]x[F]	Capital allowances [L] [I]+[K]	Total capital allowances, real [M] [E]+[L]	Total capital allowances, nominal [N] See note	Operating expenses [O] See note	Total allowed revenues, Nominal [P] [N]+[O]
2008	1,434	26	1,408	79	105	-	90	89	2	87	-	2	107	108	478	586
2009	1,408	26	1,381	77	103	87	500	485	17	556	6	23	126	130	478	608
2010	1,381	26	1,355	76	102	556	500	476	41	991	39	80	182	191	478	669
2011	1,355	26	1,329	75	101	991	325	303	60	1,234	69	129	230	247	478	725
2012	1,329	26	1,303	73	99	1,234	325	297	75	1,456	86	161	261	285	478	763

Notes:

All amounts € million; SOY = Start of year; EOY = End of year.

[A]: 2008 Opening RAB from main report. Thereafter $[A]_y = [C]_{y-1}$.

[G]: For 2008 we assume investment of €90 million based on GTS's past investment record. Annual investment between 2009 and 2012 inclusive is €1.3 billion (the 'open season' investments) divided by 4 plus, plus 50% of €350 million per year in 2009 and 2010 to allow for investment in gas storage.

[H]: [G]/((1+[1])^(year - 2007))

[I]: For year y, depreciation is the sum of all 50% of investment in year y plus investments in column [H] up to year y, divided by [5].

[N]: [M]x((1+[1])^(year - 2007-0.5))

[O]: Based on Gasunie's 2006 operating costs less investment related costs (N.V. Nederlandse Gasunie 2006 Annual Report, p.108). We assume GTS accounts for 99% of Gasunie's operating costs, and that these costs will stay constant in nominal terms (decline in real terms) due to efficiency improvements.

Table 9: Calculation of GTS's allowed revenues using EZ's initial RAB proposal

Inflation	[1]	Assumed	2%
Return, old assets	[2]	EZ	5.5%
Return, new assets	[3]	EZ	7.0%
Depreciation, old assets, years	[4]	EZ	55
Depreciation, new assets, years	[5]	EZ	20

	Old Assets					New Assets							Totals			
Year	RAB SOY [A] See note	Depreciation [B] $[A]_{2008}/[4]$	RAB EOY [C] [A]-[B]	Return on capital [D] [2]x[A]	Capital allowances [E] [D]+[B]	RAB SOY [F] $[J]_{y-1}$	Investments Nominal [G] See note	Investments Real [H] See note	Depreciation [I] See note	RAB EOY [J] [F]+[H]-[I]	Return on capital [K] [3]x[F]	Capital allowances [L] [I]+[K]	Total capital allowances, real [M] [E]+[L]	Total capital allowances, nominal [N] See note	Operating expenses [O] See note	Total allowed revenues, Nominal [P] [N]+[O]
2008	6,400	116	6,284	352	468	-	90	89	2	87	-	2	471	475	478	953
2009	6,284	116	6,167	346	462	87	500	485	17	556	6	23	485	499	478	977
2010	6,167	116	6,051	339	456	556	500	476	41	991	39	80	535	562	478	1,040
2011	6,051	116	5,935	333	449	991	325	303	60	1,234	69	129	579	620	478	1,098
2012	5,935	116	5,818	326	443	1,234	325	297	75	1,456	86	161	604	661	478	1,139

Notes:

All amounts € million; SOY = Start of year; EOY = End of year.

[A]: 2008 Opening RAB from main report. Thereafter $[A]_y = [C]_{y-1}$.

[G]: For 2008 we assume investment of €90 million based on GTS's past investment record. Annual investment between 2009 and 2012 inclusive is €1.3 billion (the 'open season' investments) divided by 4 plus, plus 50% of €350 million per year in 2009 and 2010 to allow for investment in gas storage.

[H]: [G]/[(1+[1])^(year - 2007)]

[I]: For year y, depreciation is the sum of all 50% of investment in year y plus investments in column [H] up to year y, divided by [5].

[N]: [M]x[(1+[1])^(year - 2007-0.5)]

[O]: Based on Gasunie's 2006 operating costs less investment related costs (N.V. Nederlandse Gasunie 2006 Annual Report, p.108). We assume GTS accounts for 99% of Gasunie's operating costs, and that these costs will stay constant in nominal terms (decline in real terms) due to efficiency improvements.

Table 10: Calculation of GTS's allowed revenues using initial RAB based on updated DTe estimate

Inflation	[1]	Assumed	2%
Return, old assets	[2]	EZ	5.5%
Return, new assets	[3]	EZ	7.0%
Depreciation, old assets, years	[4]	EZ	55
Depreciation, new assets, years	[5]	EZ	20

	Old Assets					New Assets								Totals		
Year	RAB SOY [A] See note	Depreciation [B] $[A]_{2008}/[4]$	RAB EOY [C] [A]-[B]	Return on capital [D] [2]x[A]	Capital allowances [E] [D]+[B]	RAB SOY [F] $[J]_{y-1}$	Investments Nominal [G] See note	Investments Real [H] See note	Depreciation [I] See note	RAB EOY [J] [F]+[H]-[I]	Return on capital [K] [3]x[F]	Capital allowances [L] [I]+[K]	Total capital allowances, real [M] [E]+[L]	Total capital allowances, nominal [N] See note	Operating expenses [O] See note	Total allowed revenues, Nominal [P] [N]+[O]
2008	3,384	62	3,323	186	248	-	90	89	2	87	-	2	250	252	478	731
2009	3,323	62	3,261	183	244	87	500	485	17	556	6	23	267	275	478	753
2010	3,261	62	3,200	179	241	556	500	476	41	991	39	80	320	337	478	815
2011	3,200	62	3,138	176	238	991	325	303	60	1,234	69	129	367	393	478	871
2012	3,138	62	3,077	173	234	1,234	325	297	75	1,456	86	161	396	433	478	911

Notes:

All amounts € million; SOY = Start of year; EOY = End of year.

[A]: 2008 Opening RAB from main report. Thereafter $[A]_y = [C]_{y-1}$.

[G]: For 2008 we assume investment of €90 million based on GTS's past investment record. Annual investment between 2009 and 2012 inclusive is €1.3 billion (the 'open season' investments) divided by 4 plus, plus 50% of €350 million per year in 2009 and 2010 to allow for investment in gas storage.

[H]: [G]/((1+[1])^(year - 2007))

[I]: For year y, depreciation is the sum of all 50% of investment in year y plus investments in column [H] up to year y, divided by [5].

[N]: [M]x((1+[1])^(year - 2007-0.5))

[O]: Based on Gasunie's 2006 operating costs less investment related costs (N.V. Nederlandse Gasunie 2006 Annual Report, p.108). We assume GTS accounts for 99% of Gasunie's operating costs, and that these costs will stay constant in nominal terms (decline in real terms) due to efficiency improvements.

Table 11: Calculation of GTS's allowed revenues using initial RAB based on DORC

Inflation	[1]	Assumed	2%
Return, old assets	[2]	EZ	5.5%
Return, new assets	[3]	EZ	7.0%
Depreciation, old assets, years	[4]	EZ	55
Depreciation, new assets, years	[5]	EZ	20

	Old Assets					New Assets							Totals			
Year	RAB SOY [A] See note	Depreciation [B] $[A]_{2008}/[4]$	RAB EOY [C] [A]-[B]	Return on capital [D] [2]x[A]	Capital allowances [E] [D]+[B]	RAB SOY [F] $[J]_{y-1}$	Investments Nominal [G] See note	Investments Real [H] See note	Depreciation [I] See note	RAB EOY [J] [F]+[H]-[I]	Return on capital [K] [3]x[F]	Capital allowances [L] [I]+[K]	Total capital allowances, real [M] [E]+[L]	Total capital allowances, nominal [N] See note	Operating expenses [O] See note	Total allowed revenues, Nominal [P] [N]+[O]
2008	5,367	98	5,270	295	393	-	90	89	2	87	-	2	395	399	478	877
2009	5,270	98	5,172	290	387	87	500	485	17	556	6	23	410	422	478	901
2010	5,172	98	5,074	284	382	556	500	476	41	991	39	80	462	485	478	963
2011	5,074	98	4,977	279	377	991	325	303	60	1,234	69	129	506	542	478	1,021
2012	4,977	98	4,879	274	371	1,234	325	297	75	1,456	86	161	533	582	478	1,061

Notes:
All amounts € million; SOY = Start of year; EOY = End of year.
[A]: 2008 Opening RAB from main report. Thereafter $[A]_y = [C]_{y-1}$.
[G]: For 2008 we assume investment of €90 million based on GTS's past investment record. Annual investment between 2009 and 2012 inclusive is €1.3 billion (the 'open season' investments) divided by 4 plus, plus 50% of €350 million per year in 2009 and 2010 to allow for investment in gas storage.
[H]: [G]/((1+[1])^(year - 2007))
[I]: For year y, depreciation is the sum of all 50% of investment in year y plus investments in column [H] up to year y, divided by [5].
[N]: [M]x((1+[1])^(year - 2007-0.5))
[O]: Based on Gasunie's 2006 operating costs less investment related costs (N.V. Nederlandse Gasunie 2006 Annual Report, p.108). We assume GTS accounts for 99% of Gasunie's operating costs, and that these costs will stay constant in nominal terms (decline in real terms) due to efficiency improvements.

Table 12: Summary of GTS's allowed revenues using different initial RABs

Year	Allowed Revenue, € mln				Allowed Revenue, % of EZ proposal		
	DORC	Depreciated assets	Updated DTe	EZ	DORC	Depreciated assets	Updated DTe
2008	877	586	731	953	92%	62%	77%
2009	901	608	753	977	92%	62%	77%
2010	963	669	815	1,040	93%	64%	78%
2011	1,021	725	871	1,098	93%	66%	79%
2012	1,061	763	911	1,139	93%	67%	80%

Appendix III : DORC calculation details

To estimate the timing of Gasunie's investment in the network, we assume that between 1985 and 2004 investments were proportional to the length of the pipeline network. Prior to this date, we assume that investments were made in proportion to demand for gas transport.[27]

Table 13: Calculation of 2006 RAB based on DORC

Year	Transported (bcm) [A] Table 14	Transport index [B] $100x[A]/[A]_{Max}$	Pipeline length, km [C] EnergieNed	Pipeline index [D] $100x[C]/[AC]_{Max}$	Investment scaling factor [E] See note	Replacement value (current value) (€mn) [F] $[E]x[F]_{Max}/100$	New investments by year (€mn) [G] $[F]_t-[F]_{t-1}$	Depreciated value in 2006 (€mn) [H] See note
1965	4.2	4.3			4.3	509	509	130
1966	7.7	7.9			7.9	934	424	116
1967	14.2	14.6			14.6	1726	792	230
1968	23.8	24.5			24.5	2886	1160	359
1969	34.8	35.7			35.7	4216	1330	435
1970	49.5	50.8			50.8	5999	1783	616
1971	63.7	65.5			65.5	7725	1726	628
1972	75.1	77.2			77.2	9112	1387	529
1973	83.3	85.6			85.6	10102	990	396
1974	83.3	85.6			85.6	10102	0	0
1975	86.1	88.5			88.5	10442	340	148
1976	85.6	88.0			88.5	10442	0	0
1977	86.6	89.0			89.0	10498	57	27
1978	84.5	86.8			89.0	10498	0	0
1979	85.9	88.2			89.0	10498	0	0
1980	78.4	80.6			89.0	10498	0	0
1981	77.9	80.1			89.0	10498	0	0
1982	78.9	81.1			89.0	10498	0	0
1983	76.5	78.7			89.0	10498	0	0
1984	81.0	83.2			89.0	10498	0	0
1985	84.5	86.8	10926	93.95	93.95	11086	587	363
1986	84.7	87.1	10872	93.48	93.95	11086	0	0
1987	87.0	89.4	10830	93.12	93.95	11086	0	0
1988	79.3	81.5	10919	93.89	93.95	11086	0	0
1989	81.2	83.5	10786	92.74	93.95	11086	0	0
1990	80.3	82.5	10685	91.87	93.95	11086	0	0
1991	88.9	91.4	10730	92.26	93.95	11086	0	0
1992	85.6	88.0	11027	94.82	94.82	11188	102	76
1993	88.4	90.9	11255	96.78	96.78	11420	231	177
1994	86.1	88.5	11487	98.77	98.77	11655	235	184
1995	88.2	90.6	11424	98.23	98.77	11655	0	0
1996	97.3	100.0	11429	98.27	98.77	11655	0	0
1997	91.2	93.8	11389	97.93	98.77	11655	0	0
1998	90.3	92.8	11630	100.00	100.00	11800	145	124
1999	88.4	90.9	11600	99.74	100.00	11800	0	0
2000	91.5	94.0	11600	99.74	100.00	11800	0	0
2001	91.2	93.8	11600	99.74	100.00	11800	0	0
2002	87.0	89.4	11600	99.74	100.00	11800	0	0
2003	87.0	89.4	11600	99.74	100.00	11800	0	0
2004	97.3	100.0	11600	99.74	100.00	11800	0	0
2005	95.2	97.8	11600	99.74	100.00	11800	0	0
2006	96.4	99.1	11600	99.74	100.00	11800	0	0
Maximum	97.3		11630			11800		
					Total		*11800*	*4538*

Notes:

[E]: From 1965 to 1984, we scale from column [B], the transported gas, as there is no information on installed pipeline lenght available; in these years the scaling factor is the maximum value in column [B] between 1965 and the year the scaling factor is calculated for. We use a maximum to account for the possibility that transported gaas volumes culd fall from one year to the next, but the investment scaling factor should not decrease from one year to the next. From 1985 onward, we switch to using the more reliable pipeline index. For these years, the scaling factor is the maximum value in column [D] between 1985 and the year the scaling factor is calculated for.
[H]: Maximum of {0,[G]x55 years - (2006 -year))/55 years}

[27] This assumption will overestimate the DORC; since we assume investments were made 'on demand' as demand for gas transport grew, but in reality investments are lumpy, and hence are made in anticipation of future demand. Earlier investment will mean more depreciation has taken lace, and hence today's DORC will be lower than we estimate.

Table 14: Estimate of transported gas volumes

	Year	Dutch Consumption [A] See note	Total volumes transported [B] See note	Ratio [C] [B]/[A]
[1]	1965	1.8	4.20	
[2]	1966	3.3	7.70	
[3]	1967	6.1	14.23	
[4]	1968	10.2	23.80	
[5]	1969	14.9	34.77	
[6]	1970	21.2	49.47	
[7]	1971	27.3	63.70	
[8]	1972	32.2	75.14	
[9]	1973	35.7	83.30	
[10]	1974	35.7	83.30	
[11]	1975	36.9	86.10	
[12]	1976	36.7	85.64	
[13]	1977	37.1	86.57	
[14]	1978	36.2	84.47	
[15]	1979	36.8	85.87	
[16]	1980	33.6	78.40	
[17]	1981	33.4	77.94	
[18]	1982	33.8	78.87	
[19]	1983	32.8	76.54	
[20]	1984	34.7	80.97	
[21]	1985	36.2	84.47	
[22]	1986	36.3	84.70	
[23]	1987	37.3	87.04	
[24]	1988	34	79.34	
[25]	1989	34.8	81.20	
[26]	1990	34.4	80.27	
[27]	1991	38.1	88.90	
[28]	1992	36.7	85.64	
[29]	1993	37.9	88.44	
[30]	1994	36.9	86.10	
[31]	1995	37.8	88.20	
[32]	1996	41.7	97.30	
[33]	1997	39.1	91.24	
[34]	1998	38.7	90.30	
[35]	1999	37.9	88.44	
[36]	2000	39.2	91.47	
[37]	2001	39.1	91.24	
[38]	2002	39.3	87	2.21
[39]	2003	40.3	87	2.16
[40]	2004	41.1	97.3	2.37
[41]	2005	39.5	95.2	2.41
[42]	2006	38.3	96.4	2.52

Notes:

[A]: BP Statistical Review of World Energy, 2007 and 2003.

[B]: [38]-[42] - Gasunie 2006 Annual Report; [1]-[37] Average of {[C][38]-[42]}x[A]

Table 15: Estimate 2008 RAB from 2006 DORC

			Money of the day	01/01/2008 money
DORC RAB, 1st Jan. 2006, NLG mln		[1] Table 12	4,538	
Inflation		[2] Assumed	2%	
DTe RAB, 1st Jan. 2006, 2008 value € mln		[3] See note		4,721
GTS Investments, € mln				
	2002	[4] See note	70	78
	2003	[5] See note	90	98
	2004	[6] See note	35	38
	2005	[7] See note	87	91
	2006	[8] See note	242	250
	2007	[9] See note	90	91
RAB 1st Jan 2008, € mln		[10] See note		5,367

Notes:

[3]: [1] inflated at 2% per year for two years.

[4]-[8]: From Gasunie N.V 2006 Annual Report p.27. 2008 values derived by inflating values using rate in [2]. For 2006 (Row [8]) GTS state that two-thirds of €367 million was invested in the pipeline network and accompanying installations - we assume that this excludes the BBL pipeline.

[9]: Estimate based on historic levels of investment.

[10]: Sum [3]-[9]

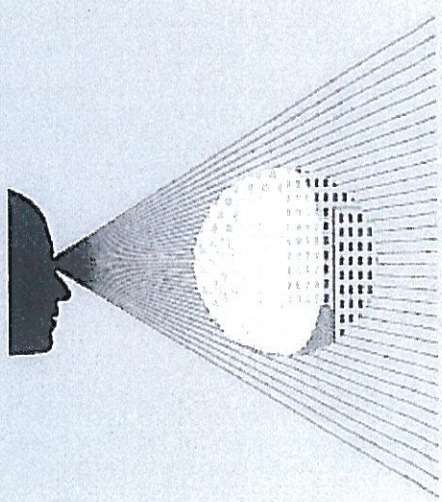
BIJLAGE 2

Oxera

The opening regulatory asset base of the Dutch gas transmission system

Prepared for the NMa

April 2011



Executive summary

The NMa has asked Oxera to identify and apply an appropriate approach to value the opening regulatory asset base (RAB) of the Dutch gas transmission system operated by Gas Transport Services B.V. (GTS). This value will inform the NMa method decision on the price control for gas transmission services.

The NMa has specified the following criteria for this exercise.

- **Objectivity**—as far as possible the method should avoid making subjective decisions or judgements.
- **Comparability**—the calculations are done on the same basis for all gas transmission system operators (TSOs) in the EU, and the method ensures a like-for-like comparison.
- **Fairness**—TSOs have the opportunity to earn a reasonable return on efficiently incurred costs, but at the same time users do not end up paying again for networks whose value has already been factored into energy tariffs.[1]

These criteria are derived from EC Regulation 1775/2005 on the conditions for access to the natural gas transmission network. They also incorporate the recommendations of the Dutch National Audit Office (Rekenkamer) on the regulation of energy networks.

The methods for valuing the RAB essentially fall under two broad categories.

- **The replacement cost approach** values the RAB with reference to the costs that would *hypothetically* be incurred by a new entrant to enter the market for transmission services. The main objective of this approach is to produce access charges that would deter market participants from making inefficient investments in networks or inefficient routing decisions.
- **The historical cost approach** values the RAB with reference to the costs that were *actually* incurred by the company to build or acquire the network. The main objective of this approach is to prevent windfall gains and losses for the company, and associated impacts on consumers.

Given the emphasis that the NMa places on the notion of fairness, the historical cost approach seems more relevant to this exercise than the replacement cost approach. The latter would be mostly relevant if there were:

- significant scope for new entry or pipeline-to-pipeline competition in the Dutch gas transmission network;

and

- insufficient flexibility in the charging methodology to produce efficient price signals for the specific services concerned without amending the RAB valuation methodology.

While an in-depth assessment of these considerations is outside the scope of this study, the available research does not seem to suggest that they are applicable at present. Should there be any concern with infrastructure-based competition, changing the structure of

[1] This specific interpretation of the term fairness is used throughout the report.

charges (or the mechanisms for allocating capacity) may be a more proportionate policy response than amending the RAB valuation methodology.

Moreover, the replacement cost methodology requires a large amount of discretion and engineering judgement from the party responsible for the valuation, which may make its implementation more cumbersome.

This leaves the question of how to implement the historical cost approach in the Dutch context. The application of this approach is, by its nature, largely contingent on the historical background.

Oxera understands that, before the Dutch gas industry was restructured in 2005, Gasunie was essentially subject to a 'cost plus' regime, where the retail prices charged to end-users were based on the prices of the alternatives (gas oil and light fuel oil), while the wholesale prices paid to production companies were calculated to allow Gasunie to recover its costs. These costs included the company's capital costs, calculated in accordance with the accounting standards of the time.

If this understanding is correct, the **net book value** (NBV) of the transmission network would seem to be the most direct measure of the share of Gasunie's capital costs that had not yet been recovered from customers when the industry was restructured in 2005, and, therefore, the valuation standard that most closely matches the notion that users should not pay again for assets already adequately remunerated. However, it is also important to ensure that the RAB valuation methodology allows GTS to earn a fair rate of return on any investment prudently and efficiently incurred, and the subsequent developments surrounding the introduction of competition and the restructuring of the industry may be relevant in this respect.

In 2000, the Gas Act required the establishment of a regime of third-party access for transmission. In 2001, the DTe, the energy regulator at the time, made it clear that it considered **depreciated historical costs** (DHC) to be the relevant approach to valuing the RAB.[2] However, from 2003 onwards, the DTe also allowed Gasunie to take into consideration international benchmarks when setting access charges. It is conceivable that these developments influenced investors' expectations regarding future returns to Gasunie's transmission business. In turn, these expectations may have informed the price paid by the Dutch government in the 2004 acquisition.

In 2005, in its first method decision for gas transmission charges, the DTe continued to apply depreciated historical costs to value the RAB of the Dutch gas transmission system albeit incorporating an adjustment for inflation. Given the timing of this decision (ie, after the restructuring of Gasunie in 2004), it is unclear whether this influenced investors' expectations concerning future returns and Oxera is not aware of any evidence that would confirm this.

However, it is difficult to ascertain objectively these effects on future return expectations, and they would not necessarily provide a sufficient reason for basing the RAB determination on the acquisition value given the lack of consensus surrounding access charging at the time of the transaction. Moreover, it is conceivable that the acquisition value of GTS incorporated the acquirer's expectations of outperformance against regulatory assumptions as well. As such, using the acquisition value to set the RAB would be somewhat circular, since the regulatory determination would influence, and be influenced by, investors' expectations of the value of Gasunie's network.

Overall, given the lack of clarity concerning the basis for access charges before 2005, and given the challenges of disentangling the factors underpinning the acquisition value of GTS, it is difficult to identify a single valuation standard that would best ensure that investors earn

[2] Depreciated historical costs differed from the net book value in that depreciation was calculated to reflect expected asset lives rather than the accounting lives used in the company's account at the time.

a fair return on their investment. This therefore implies that the NMa retains considerable opportunity to exercise its judgement in the matter of GTS's opening RAB value, with the main differentiating factor between the methods being the emphasis on the fairness to consumers or fairness to investors (as illustrated in the figure below).

Valuation methods and the fairness criterion (RAB values, as at December 31st 2005)

Note: DRC, depreciated replacement costs.
Source: Oxera.

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1 Introduction

The NMa has asked Oxera to advise on the opening regulatory asset base (RAB) of the Dutch gas transmission system operated by Gas Transport Services B.V. (GTS) as at December 31st 2005, for the purpose of setting GTS's price control. The determination of GTS's opening RAB has been a contentious aspect of the price control process since 2005, with the following values and approaches being put forward.

- In 2005, the energy regulator (the DTe) set the initial GTS price control on the basis of an **opening RAB of €4.8 billion** (as at January 1st 2005). The DTe determined this value by rolling forward the historical costs of Gasunie's transmission assets on the basis of the national consumer price index (CPI) and estimated asset lives. GTS subsequently appealed this decision on several grounds (including the RAB valuation) and the Trade and Industry Appeals Tribunal (CBb) annulled it in 2006 (the CBb's decision did not relate to the value of the RAB).

- In 2008, the Ministry of Economic Affairs (MEA) adopted a policy rule that prescribed an **opening RAB of €6.4 billion** for future price control determinations (also as at January 1st 2005). The MEA also used the historical costs of Gasunie's assets as the starting point for the analysis, but its approach differed from that of the DTe with respect to the measure of inflation used (the MEA used a basket of indices of consumer prices, producer prices, wages and materials), and the depreciation and capitalisation rules applied. In June 2010, following an appeal by network users, the CBb annulled the NMa's determination that applied this policy rule. This CBb's decision was based on the notion that the MEA's policy rule breached the NMa's independence.

Against this backdrop, the NMa has specified a series of criteria for valuing the opening RAB of GTS (summarised in section 2.3 of this report), and has asked Oxera to identify and apply valuation methodologies that would meet these criteria.

The report is structured as follows.

- Section 2 ('valuation approaches') sets out alternative approaches to setting GTS's RAB, and assesses these against the NMa's criteria.

- Section 3 ('valuation estimates') provides alternative estimates of the RAB reflecting these alternative approaches.

2 Valuation approaches

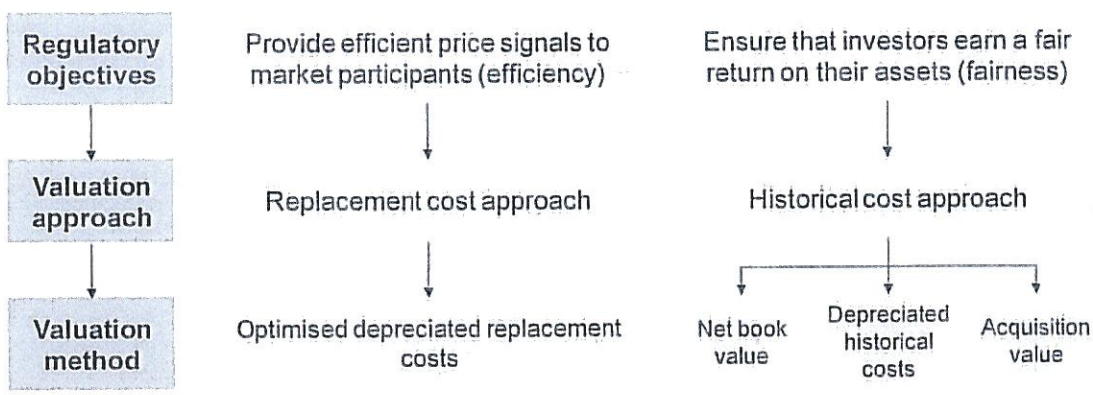
The purpose of this section is to identify a valuation approach that would be appropriate in light of applicable legislation and other guidance. It proceeds by:

- setting out the spectrum of valuation options (section 2.1);
- summarising international precedent (section 2.2);
- setting out an assessment framework (section 2.3);
- applying this framework to valuation options (section 2.4);
- formulating recommendations on the appropriate methodology (section 2.5).

2.1 Options

The methods for valuing the RAB of regulated businesses fall under two categories, which can be termed the 'replacement cost' approach and the 'historical cost' approach. Figure 2.1 summarises the relationship between these two approaches and alternative regulatory objectives. Further explanation is then provided on these alternative models, distinguishing between the level of the economic principles applied (the 'approaches') and the level of implementation and operationalisation (the 'methods').

Figure 2.1 Valuation objectives and methods



Source: Oxera.

2.1.1 Replacement cost approach

The replacement cost approach is typically operationalised as the optimised depreciated replacement cost (ODRC) method.[3] The ODRC can be defined as the depreciated cost of the most efficient combination of assets that could replace the existing network and provide the level of service required by customers. That is, the ODRC is a measure of replacement costs that reflects the optimal configuration of the network, the most efficient technology, and the

[3] More precisely, the value of the RAB under this approach is the lesser of the ODRC and the economic value (EV) of the assets, where the EV is the present value of expected income determined by the least-cost substitute. This qualification applies to services that face a degree of competition from alternative technologies. For example, if gas faced intense competition from liquefied petroleum gas (LPG) in large market segments, it might make sense to value the assets exposed to this competition at the net present value (NPV) of expected income determined by competition with LPG. However, this qualification does not seem to apply to Dutch gas transmission services and is not discussed further in this report.

relevant asset prices *at the time of the assessment*. (More details on the practical requirements of this method are provided in section 3.1.)

The ODRC method essentially seeks to replicate the outcome of a competitive process in the market for the regulated service. More specifically, it is designed to deliver the maximum revenues and prices that an incumbent could charge while avoiding new entry. If, in a competitive market, an incumbent were to charge a price that would deliver a net present value (NPV) above the ODRC, this would attract new entry by competitors, which would force prices down to the level that delivers the ODRC. For this reason, the ODRC is often claimed to have a number of advantages in terms of economic efficiency.

Reduced risk of inefficient entry

From a regulatory perspective, the principal advantage of using the ODRC is that it will prevent inefficient entry into the market. Suppose that the regulated transmission system operator (TSO) were able to meet all demand for transmission services between two locations with one existing pipeline. If the regulator were to set transmission charges for that pipeline using an asset value above the ODRC, this could attract new entry by potential competitors. This outcome would be inefficient to the extent that it would add costs to the system (insofar as it would motivate the construction of an additional pipeline) without any commensurate increase in overall economic welfare (insofar as the amount of gas transmitted would remain unchanged and the network would be underutilised).

There are two important qualifications to this argument. First, it implies that the market is contestable and there is a realistic prospect of new entry. In particular, it presupposes that any potential new entrant could technically integrate new facilities into the existing network, and could obtain long-term financial commitments from existing users (otherwise there would be a risk that the two providers of transmission services would compete on the basis of their marginal costs after entry has occurred). The presence of barriers to entry makes this benefit of the replacement cost approach less relevant, and suggests that the RAB value that would lead to inefficient bypass is higher than the ODRC. In practice, there are very few known cases of infrastructure duplication in gas transmission. Second, this argument requires only that the RAB does not *exceed* the ODRC. In principle, a RAB value below the ODRC would also prevent inefficient entry.

Reduced risk of inefficient routing of gas flows

An additional (related) advantage of using the ODRC is that, assuming there is scope for pipeline-to-pipeline competition, this method would lead users to select the route with the lowest cost impact for the system. Suppose that there are two different routes between two points on the network—pipeline A and pipeline B—and that both pipelines are operated at full capacity. Pipeline A has a higher replacement cost than pipeline B (eg, because it is longer), but a lower historical cost (eg, because its depreciation has been accelerated in the price control). If the regulator were to set transmission charges for each pipeline on the basis of that pipeline's historical costs, users would seek to book capacity from the owner of pipeline A, where capacity expansion is the most expensive. If the regulator were to set transmission charges on the basis of the ODRC, users would seek to book capacity from the owner of pipeline B, where capacity expansion is cheaper.

Again, this argument entails certain important qualifications. First, it is relevant only where there is a realistic prospect of infrastructure-based competition. In particular, it presupposes that there are alternative routes between different points on the networks, and that these routes are operated by different companies. Second, this argument requires that the access charges reflect the ODRC only *for the particular pipelines that are exposed to pipeline-to-pipeline competition*. In principle, the transmission charging methodology (ie, the way allowed revenues are recovered from different users) might ensure that this requirement is met even where the RAB valuation methodology (ie, the way allowed revenues are defined) is based on another standard.

Reduced risk of inefficient capacity expansion

A final advantage of using the ODRC is that it could lead network users to internalise the cost of capacity expansion in their decisions to use the network, which, in principle, should lead to an efficient level of demand for capacity. This is essentially because the prices delivered by the ODRC method approximate the long-run incremental costs (LRIC) of providing new capacity. Suppose that the cost of adding new capacity to one particular pipeline is €10/MWh/day (and that this is reflected in the ODRC of the pipeline), but that the actual tariff is €2/MWh/day (reflecting the historical cost of the whole network). In this case, users might seek to book capacity on the pipeline even if their willingness to pay is lower than the cost of providing the capacity. The cost of providing the extra capacity would then simply be 'spread' over the wider customer base of the TSO in order to ensure cost recovery.

This argument is mostly relevant if there is no spare capacity in the network and if the demand for transmission services will react to price signals. As for the previous argument (concerning the risk of inefficient routing), it requires that access charges reflect the ODRC only for the particular transmission services facing price-sensitive demand. In the UK electricity sector, for example, the RAB of the transmission network is based on historical costs, but the specific access charges applied to generators are set to reflect the incremental costs of capacity expansion at different points in the network. The difference between the sum of allowed revenues in the price control (based on the historical costs of the whole network) and the revenues recovered from generators (based on the LRIC at different points in the network) is recovered from the demand side.[4] This policy reflects the notion that, while generators can potentially respond to price signals by locating their plants in lower-cost areas, electricity consumers are unlikely to base their location decisions on the level of transmission charges.

Informational complexity

The principal disadvantage of this approach is that it may generate windfall gains or losses for the company, and therefore perceptions of unfairness (unlike the historical approach—see below). An additional disadvantage is that it relies on a range of assumptions and judgements about the evaluation parameters, such as the optimal configuration of the network, the most efficient technology for replicating the assets, and the expected useful life of the assets. The complexity of the calculations involved might provide significant discretion to the regulator. Where there is substantial uncertainty as to how the regulator will exercise this discretion, this methodology can act as a disincentive for new investment.

Summary

In summary, the replacement cost approach seeks to replicate the outcome of a competitive market by producing the highest possible access charges short of which a new entrant might be encouraged to duplicate the transmission network and compete for these charges. It is implemented by using the ODRC method, which delivers the replacement cost of an 'optimised' system less accumulated depreciation. It should be noted that although the replacement cost approach has a foundation in economic theory, there are relatively few known cases of inefficient network bypass in gas transmission.

2.1.2 Historical cost approach

Under the historical cost approach, the value of the RAB reflects the original costs incurred by the owners of the company to build or acquire the network, or, more specifically, the share of these costs that has not yet been passed through to customers as part of past network charges.

This approach is premised on the notion that the price control should enable the regulated company to recover the cost of its investment into the network exactly (neither more nor less). In other words, it seeks to ensure that the NPV of any regulated investment is zero,

[4] Ofgem is currently reviewing this methodology. See Ofgem (2010), 'Project TransmiT: a call for evidence', September 22nd.

and it does not directly attempt to approximate market outcomes in terms of access charges and asset values.[5]

The principal advantage of the historical cost approach is that it avoids windfall gains or losses for the company (ie, gains or losses generated by factors beyond the control of the company's management). As a result, it is typically perceived to ensure a greater degree of fairness between the company and its customers than the replacement cost approach. Suppose, for example, that the price of an essential input (eg, steel) has increased faster than CPI since the company built the network. Under the replacement cost approach, this would be reflected in a higher RAB in real terms for the company (and, therefore, in higher returns for its owners), even though variations in input prices cannot be attributed to the decisions of the management. Under the historical cost approach, movements in input prices would not affect the returns earned by the company and its owners.

Under this approach, the opening RAB is essentially the terminal value that will make the NPV of the company's past cash flows equal to zero. If there is sufficient information on the past financial performance of the regulated business, it might be possible to estimate this value directly as the present value of past CAPEX minus the present value of operating cash flows. Alternatively, if the regulated business has been subject to continuous price regulation in the period leading up to the valuation exercise, it might be possible to estimate this value indirectly by reference to the valuation standard used in the previous regulatory regime. Finally, if the current owner has purchased the asset from the original investors, there is a question as to whether the acquisition value is relevant to the exercise.

In general, it must be emphasised that there is no single 'right' way to implement this approach. The historical cost approach is therefore essentially pragmatic in that it is designed to capture the outstanding stock of capital costs that has not yet been recovered from customers. As such, the precise valuation method must reflect the institutional context and the historical background of the sector in terms of capital investment, corporate transactions, and regulatory developments.

Historical background

Oxera's understanding of the historical background to this review can be summarised as follows.

- **Before the liberalisation of the Dutch gas industry**, Gasunie's integrated business (transmission and supply) was essentially subject to a cost-plus regime as part of the industry structure for the commercialisation of gas from Dutch fields. Under this regime, Gasunie purchased gas from producers and resold it to industrial consumers and regional distribution companies. The retail price charged to end-users was set with reference to the cost of substitutes (gas oil, fuel oil, and coal), and the wholesale price paid to producers was calculated so as to leave Gasunie with a constant profit after tax of NLG 80.0m (EUR 36.3m).[6] This regime meant that the market risk associated with gas price volatility was borne by the producers, not by Gasunie.[7] This system appears to have been maintained until 2004 (ie, after the Dutch Gas Act opened up the market to competition). Table 2.1 below shows Gasunie's key financial metrics for the 2000–04 period and illustrates how this system worked to deliver a fixed return after the depreciation charge was accounted for (for comparison, Table 2.2 shows Gasunie's financials following unbundling and conversion to IFRS).

[5] An image frequently used to illustrate the principle of this valuation approach is that of a bank account, where capital expenditure represents new deposits, regulatory depreciation represents withdrawals, and the RAB is the account balance that earns a return to the account holder.

[6] See, for example, Correljé, A. and Verbong, G. (2004), 'The transition from coal to gas: radical change of the Dutch gas system', in B. Elzen, F. Geels, and K. Green (eds), *System innovation and the transition to sustainability: Theory, Evidence and Policy*, Cheltenham: Edward Elgar.

[7] Similarly, the risk due to variations in transmission costs was also borne by gas producers.

- **In 2000**, the Gas Act required the establishment of a regime of third-party access for transmission. Under this regime, Gasunie could negotiate access terms with gas shippers, having regard to the guidelines issued by the DTe.

- **Between 2001 and 2005**, the DTe published a set of guidelines for the calculation of transmission charges. The guidelines specified a methodology for valuing the opening RAB, which was based on depreciated historical costs (using economic useful lives and no inflation indexation).[8] These rules produced a RAB value of €2.43 billion as at January 1st 2002.[9] However, from 2003 onwards, the DTe also allowed Gasunie to take into consideration international benchmarks when setting access charges.[10] This concern with comparability arose in part from a report by Professor Jepma, who argued that low transmission charges in the Netherlands would lead to overuse of the network for transit purposes and threaten security of supply for domestic consumers.[11] In this period, Gasunie was required to reduce transmission charges by 6.5% in 2001 and 5% annually in the years 2002–05.[12]

- **In November 2004**, the Dutch state announced that it would purchase the share of Gasunie's equity that was owned by Exxon and Shell. This transaction was part of an effort to restructure the industry and comply with European legislation.

- **In 2005**, an amendment to the Gas Act required the DTe to determine access charges for gas transmission (instead of just specifying the methodology to be followed). The DTe subsequently adopted a formal decision on gas transmission charges which valued the RAB at €4.84 billion (as at January 1st 2005), based on inflated historical costs.

Table 2.1 Consolidated income statement and fixed assets of Gasunie, 2000–04 (€m)

	2000	2001	2002	2003	2004
Gas sales	8,976	12,028	10,725	11,233	11,884
Other income	107	131	180	224	312
Total operating income	9,083	12,159	10,905	11,457	12,197
Gas purchases	8,610	11,665	10,335	10,892	11,620
Other operating expenses	263	288	365	366	384
Depreciation	118	116	119	121	118
Operating result	93	90	86	78	75
Net financial income and expenses	–37	–34	–36	–25	–20
Result on ordinary activities before tax	56	56	50	53	55
Taxation	–20	–20	–14	–17	–19
Result after tax	36	36	36	36	36
Tangible fixed assets (year end)	1,048	999	962	938	926

Source: Gasunie accounts.

[8] Dte (2001), 'Richtlijnen voor het jaar 2001 van de Directeur DTe, zoals bedoeld in artikel 13 en artikel 18 van de Gaswet', paras 51 to 53. Dte (2002), 'Richtlijnen Gastransport voor het jaar 2002', article 18. Dte (2002), 'Toelichting Richtlijnen Gastransport voor het jaar 2002', para 206. Dte (2003), 'Richtlijnen Gastransport 2003', articles 16 and 17. Dte (2003), 'Toelichting Richtlijnen Gastransport 2003', paras 184 and 189; Dte (2005), 'Richtlijnen Gastransport 2005', articles 16–22.

[9] Rekenkamer (2009), 'Tariff regulation energy transport', p. 117.

[10] DTe (2003), 'Richtlijnen Gastransport 2003', article 22.

[11] DTe (2003), 'Toelichting Richtlijnen Gastransport 2003', para 206.

[12] DTe (2005), 'Richtlijnen Gastransport 2005', article 22.

Table 2.2 Consolidated income statement and fixed assets of Gasunie following restructuring, 2004–05 (IFRS reporting - €m)

	2004	2005
Revenue	1,418	1,277
Operating expenses	–515	–426
Depreciation	–187	–201
Operating result	716	650.7
Net financial income and expenses	–29	–21
Result on ordinary activities before tax	687	629
Taxation	–239	–197
Result after tax	447	432
Tangible fixed assets (year end)	5,036	5,088

Note: Gasunie revalued tangible assets following conversion to IFRS.
Source: Gasunie accounts.

Alternative estimates of historical costs

This review of the historical background suggests that Gasunie was subject to continuous economic regulation in the period leading up to the valuation exercise. As such, the valuation standards used in the previous regulatory regimes can inform the amount of capital costs that had not been recovered from customers at the date of the valuation.

- **Net book value**—the regulatory regime applied until 2004 allowed Gasunie to earn a fixed return on its activities (transmission and supply) after accounting for the depreciation charge on its network. In view of this regime, the NBV of the transmission network appears to be the most direct measure of the share of capital costs that had not yet been recovered from customers when the industry was restructured in 2005.

- **Depreciated historical costs (nominal)**—the DTe's guidelines published between 2001 and 2005 recommended that the RAB for gas transmission be set by reference to DHC (using economic asset lives and no inflation adjustment). This aspect of the guidelines does not seem to have had any direct impact on the access charges applied by Gasunie over this period. However, it may have influenced investors' expectations concerning future returns, and this effect might be relevant for the valuation of the opening RAB (although Oxera is not aware of any evidence with which to know this with certainty). The discussion on the acquisition value below provides more explanations on this possible link.

- **Depreciated historical costs (real)**—the DTe's method decision published in 2005 set the RAB by reference to DHC (using economic asset lives and an adjustment for inflation based on the CPI). Given that the decision was published in 2005 (ie, after the restructuring of Gasunie in 2004), it is unclear whether this influenced investors' expectations concerning future returns due to the impact of inflation indexation (Oxera is not aware of any evidence that would confirm this).

Table 2.3 below summarises the differences between these valuation methods and provides the opening RAB figures calculated in accordance with them.

Table 2.3 Valuation standards used in previous regulatory regimes

	Net book value	DHC (nominal)	DHC (real)
Application	Applied until 2004	Promoted by the DTe between 2001 and 2004 (not applied)	Prescribed by the DTe in 2005 (decision annulled)
Asset lives	Pipelines: 20 years	Pipelines: 55 years	Pipelines: 55 years
	Installations: 10 years	Installations: 30 years	Installations: 30 years
Inflation adjustment	None	None	CPI
Value as at December 2005 (€ billion)	0.95	2.59	4.74

Source: Oxera calculations, based on the asset register of GTS (see section 3.2).

In assessing the relevance of the **acquisition value** of GTS for this exercise, it is important to distinguish between three possible components of this value.

- **Present value of expected allowed returns**—the acquisition value reflects the acquirer's expectations with respect to future allowed returns (ie, the depreciation and return allowances included in future price controls). If, at the time of the transaction, the regulator had unambiguously committed to a particular course of action in this respect, and if the acquirer acted in good faith on the basis of this commitment,[13] it might be necessary to take this component into consideration when setting the opening RAB. Otherwise, the decision might generate a windfall loss (or gain) for the acquirer, which could be considered 'unfair'.

  In the case of Gasunie, however, it is unclear whether such a commitment on future depreciation and return allowances had been made. For example, the guidelines issued between 2001 and 2005 clearly indicate a lack of consensus on the method for setting access charges. While Gasunie seems to have initially set access charges by reference to international benchmarks for transit flows, the regulator had clearly put forward a cost-based approach applicable to the transmission system as a whole and had imposed a price-reduction path to ensure a degree of convergence towards cost-based prices.

- **Present value of expected outperformance**—the acquisition value will reflect the acquirer's expectations with respect to GTS's ability to outperform the regulator's assumptions in terms of operating costs, capital costs, and financing costs. Table 3.4 in section 3.3 shows that this component can represent a significant part of acquisition values for regulated utilities. It would be inappropriate to incorporate this component into the opening RAB, as it would double-count the effect of outperformance on expected returns.

- **Restructuring costs**—finally, there might be an argument that part of the acquisition value represented a cost that the Dutch government had to incur as part of its effort to restructure the gas sector. However, the nature of this cost is not obvious. Moreover, even if this interpretation were correct, it would not automatically imply that this component should be incorporated into the RAB. Different aspects of the restructuring might have benefited different categories of stakeholder: strengthening the independence of the TSO might have benefited gas customers (which could potentially justify recovering the cost from network users), but maintaining public ownership in the sector might have benefited a wider group of stakeholders (which could justify recovering the cost from taxpayers).

[13] An investor acting in good faith is taken to be one that acts on the basis of all available information and reasonable expectations with respect to future regulatory decisions.

In practice, it is difficult to disentangle these different effects. As such, there is a risk that setting the RAB with reference to the acquisition value would create a circular relationship between the market value and the regulated value of the assets, insofar as the price paid by the acquirer would depend on its expectations about how the regulator would react.

2.1.3 Summary

The rationale and objectives of the two approaches can be summarised as follows.

- The replacement cost approach values the RAB by reference to the costs that a hypothetic new entrant would incur, whereas the historical cost approach values the RAB by reference to the costs actually incurred by the company.

- The replacement cost approach seeks to provide efficient price signals to market participants (to reduce the risk of inefficient entry or inefficient routing decisions), whereas the historical cost approach seeks to prevent windfall gains and losses (to preserve fairness between companies and consumers).

As such, in general, the replacement cost approach is most likely to have economic merit where there is a realistic prospect of new entry and competition in the market, which, in turn, is most likely to be the case in settings subject to substantial and rapid changes in technology, costs, or demand. For this reason, this approach is more commonly used in the communications sector than in traditional utilities industries; although, as indicated in section 2.2 below, there are examples of this approach being adopted in the gas industry.

Where there is a presumption that network users will react to price signals for *some* of the services provided by the TSO (eg, international transit flows) but not others (eg, regional flows), it would be possible to realise the benefits of the replacement cost approach without necessarily using this approach to value the whole RAB. In practice, this would be achieved by setting charges to reflect the replacement costs for those particular services where price signals are relevant, and by setting charges to reflect the 'residual' revenue requirement for other services.

Differences in implementation

It is also worth highlighting certain important differences in the implementation of these two approaches. To apply the historical cost approach, it might be necessary to roll forward the historical cost of the assets based on the valuation standards used in the previous regulatory regime. This method might formally resemble the ODRC, in that it starts from the original costs of the assets and adjusts these costs for depreciation and, in certain cases, inflation. This resemblance is only superficial, however, as the depreciation and inflation adjustments have very different purposes under the two approaches.

- **Depreciation**—under the replacement cost approach, useful lives are meant to reflect the period over which the assets can be used to deliver a valuable service. Under the historical approach, if the purpose of the exercise is to set the opening RAB, what matters is that the calculation reflects the asset lives that were actually used in the past regulatory regime, irrespective of whether these could be judged optimal at the time of the evaluation or whether they are consistent with the prevailing accounting norms. Again, this is because the objective of this approach is to estimate the share of the original costs that has not yet been passed through to customers, which, by construction, depends on the depreciation policy applied in the past regulatory regime.

  Where the historical cost approach is also applied to roll forward the RAB in subsequent price controls, useful lives are used to determine the pace at which asset costs are recovered from network users and 'reimbursed' to investors. Under this approach, the regulator has a greater degree of discretion in deciding on asset lives than under the replacement cost approach. Considerations of inter-generational equity, financeability, or price stability might affect this decision, but in principle the regulatory asset lives

under the historical cost approach do not need to reflect precisely the technical or economic lives of the assets.

- **Inflation**—under the replacement cost approach, the revaluation of the assets is intended to capture variations in the costs of transmission assets. The objective is to estimate how much it would cost to replicate the assets now compared with what it actually cost to build them in the past.

  Under the historical cost approach, by contrast, the revaluation of the assets is intended to reflect variations in the price of goods and services in the wider economy. The objective is to ensure that investors are compensated for the effect of inflation on their purchasing power.

  This distinction explains why different indexes are used under the two approaches: the replacement cost approach typically relies on indexes of producer prices or construction costs, whereas the historical cost approach normally relies on indexes of consumer prices.

  Under the historical cost approach, the revaluation of the asset base is necessary only if investors were not compensated for the effect of inflation through other means in the period leading up to the valuation exercise. In particular, if the allowed rate of return incorporated a measure of inflation expectations (ie, if a 'nominal' as opposed to a 'real' WACC were used), there is no obvious ground for revaluing the assets (as, arguably, this would amount to 'double-counting' the effects of inflation).

- **Optimisation**—finally, under the replacement cost approach, the estimation also incorporates engineering optimisation of the network. That is, the RAB reflects a reconfigured system designed to serve the current load plus expected growth over a specified period using modern technology. This method excludes any under- or unused assets beyond the specified planning horizon and allows for potential cost savings resulting from technological progress.

  Under the historical cost approach, the RAB contains all assets that have been built and approved by the regulator in the past, regardless of technological progress or whether they are still used and useful.

2.2 Precedents

Table 2.4 summarises the valuation methods used by a sample of European regulators to set the initial RAB, and shows that both the replacement and historical cost approaches have been used.

Very few regulators have stated explicitly the reasons for their methodological choices. Of those regulators in the sample that have adopted replacement costs, only the Swedish regulator, Energimarknadsinspektionen (EI), provides an extended explanation for its choice, which largely revolves around the production of efficient price signals to end-consumers (see Box 2.1). Of the regulators that have adopted historical costs, only the UK Monopolies and Mergers Competition (MMC, now the Competition Commission) explicitly rationalised its choice, arguing that the use of replacement costs would produce a windfall gain for the company.

A study on gas transmission tariffs conducted for the European Commission previously concluded that indexed historical costs were the most prevalent methodology.[14]

[14] KEMA and REKK (2009) 'Study on methodologies for gas transmission tariffs and gas balancing fees in Europe', December.

This analysis shows that it is difficult to draw any general conclusions as to the prevalence of any one method among European regulators. Much seems to depend on the objectives of the regulator, the industry structure, and the historical background leading up to the introduction of economic regulation.

Table 2.4 Regulatory precedent for setting initial regulatory capital values

Country	Company (regulator)	Valuation approach (valuation method)	Estimation parameters
Ireland	Bord Gáis (CER)	**Historical costs** (DHC, real)	Price index: Irish Harmonised Consumer Price Index (HCPI) Asset lives: 50 years for pipelines, 25 years for compressor stations
Italy	Snam Rete Gas (AEEG)	**Historical costs** (DHC, real)	Asset lives: 50 years for pipelines
Germany	RWE, Gasunie, Wingas (Bundesnetzagentur, BnetzA)	**Historical costs** (DHC, real and nominal)	The BnetzA applies a hybrid method based on nominal DHC (for the share of the assets financed by debt) and real DHC (for the share of the assets financed by equity)
UK	Transco (MMC)	**Historical costs** (acquisition value)	Opening RAB set with reference to the company's flotation value at privatisation
France	GRTgaz and TIGF (CRE)	**Historical costs** (acquisition value)	Opening RAB set with reference to the value paid by the TSOs to acquire the assets from the state following the termination of concession contracts Acquisition value established by an independent expert based on a combination of elements from the replacement cost and inflated historical cost approaches
Denmark	Energinet (DERA)	**Historical costs** (Acquisition value)	Energinet was formed in 2005 to acquire the transmission assets of the previous asset owners. The price paid for the acquisition was based on the net book value of the assets (which was used as the RAB before the consolidation process) and a premium intended to reflect the additional value to the owners of transmission assets
Finland	Gasum (EMA)	**Replacement costs** (DRC)	Replacement costs based on estimated current unit costs Asset lives based on residual economic useful lives No network optimisation
Sweden	E.ON Gas Sverige and Swedegas (EI)	**Replacement costs** (DRC)	Replacement costs based on estimated current unit costs Asset lives: 40 years for pipelines and 25 years for compressors No network optimisation
Belgium	Fluxys (CREG)	**Replacement costs** (DRC)	Replacement costs based on estimated current unit costs Asset lives: 50 years for pipelines and 33 years for compression No network optimisation

Sources: As stated in Table A2.1 in Appendix 2.

Box 2.1 Stated advantages and disadvantages of the replacement costs approach in Sweden

The EI considers that the replacement cost approach has two main advantages. First, it is more likely to produce efficient price signals to end-consumers, which is important owing to potential inter-fuel competition in the market for space heating. Second, the incentive for owners to maintain existing assets is not dependent on the age of the assets (which may be not a reliable indicator of an asset's capacity or the quality of services it renders), thereby ensuring that whole-life capacity utilisation is maximised and potentially contributing to network reliability.

The EI notes that regulation under the replacement cost approach may be considered more 'risky' by investors than under the historical cost approach because the current cost of the assets may differ from changes to average prices as measured by the CPI. Also, it recognises that establishing the current cost of existing networks may be more time-consuming than adopting a valuation based on historical costs, at least when setting the opening RAB value.

Source: Energimarknadsinspektionen (2009), 'Tillsynsmetod för överföring och lagring av naturgas i Sverige - Steg 2 – Fördjupade metodstudier'; and Energimarknadsinspektionen (2009), 'Tillsynsmetod för överföring och lagring av naturgas i Sverige - Steg 2 – Fördjupade metodstudier'.

2.3 Criteria

This section lists the criteria specified by the NMa for the determination of the RAB (section 2.3.1) and provides additional comments on their consistency with generally accepted regulatory principles (section 2.3.2).

2.3.1 Criteria specified by the NMa

The criteria provided by the NMa for the valuation of the RAB are as follows:

- **objectivity**—as far as possible the method should avoid making subjective decisions or judgements;
- **comparability**—the calculations are done on the same basis for all gas TSOs in the EU, and the method ensures a like-for-like comparison;
- **fairness/balance or reasonableness**—TSOs have the opportunity to earn a reasonable return on efficiently incurred costs, but at the same time users do not end up paying again for networks whose value has already been factored into energy tariffs.

These criteria are derived from Article 3 of Regulation EC 1775/2005, and take into account the recommendations of the Dutch National Audit Office (Rekenkamer) regarding the regulation of energy networks. For ease of reference, Box 2.2 below provides the full text of these references.

Box 2.2 References for valuation criteria

Article 3 Section 1 of REGULATION (EC) No 1775/2005 of 28 September 2005 on conditions for access to the natural gas transmission networks.

'Tariffs, or the methodologies used to calculate them, applied by transmission system operators and approved by the regulatory authorities pursuant to Article 25(2) of Directive 2003/55/EC, as well as tariffs published pursuant to Article 18 (1) of that Directive, shall be transparent, take into account the need for system integrity and its improvement and reflect actual costs incurred, insofar as such costs correspond to those of an efficient and structurally comparable network operator and are transparent, whilst including appropriate return on investments, and where appropriate taking account of the benchmarking of tariffs by the regulatory authorities. Tariffs, or the methodologies used to calculate them, shall be applied in a non-discriminatory manner.

Member States may decide that tariffs may also be determined through market-based arrangements, such as auctions, provided that such arrangements and the revenues arising therefrom are approved

by the regulatory authority.

Tariffs, or the methodologies used to calculate them, shall facilitate efficient gas trade and competition, while at the same time avoiding cross-subsidies between network users and providing incentives for investment and maintaining or creating interoperability for transmission networks.'

Note: Regulation EC 1775/2005 will be superseded by Regulation EC 715/2009 in March 2011, but the wording of this article is similar across both regulations.

Criteria used by the Rekenkamer

'We assessed the imputed values [of the RABs] by testing them against the following criteria:

- Were they based on objective criteria?
- Do the figures guarantee that users are not paying again for networks whose value has already been factored into energy tariffs?
- Do the figures make it easy to compare network operators?'

Source: Rekenkamer (2009), 'Tariff regulation energy transport', p. 18.

The reference in Regulation 1775/2005 to 'actual costs incurred' could be interpreted as a direct endorsement of the historical cost approach. However, the subsequent qualification—that such costs should 'correspond to those of an efficient and structurally comparable network operator'—could be interpreted as a reference to the hypothetical new entrant test under the replacement cost approach. As such, from an economic perspective, the Regulation does not seem to rule out either of the two approaches discussed in section 2.1.

2.3.2 Oxera comments

The NMa also asked Oxera to comment on the suitability of the references provided for the price control review of GTS.

Efficiency

As explained in section 2.1 of this report, the debate surrounding the valuation of the RAB is often framed as a trade-off between the two objectives of efficiency and fairness. Within this framework, the criteria used by the NMa emphasise fairness. Neither the European Regulation nor the Rekenkamer report makes any clear reference to the need to produce efficient price signals or to incentivise particular types of behaviour on the part of network users.

This prioritisation of fairness over efficiency does not seem inappropriate in the context of the Dutch gas industry. The efficiency criterion would be mostly relevant if there were evidence of:

- significant scope for new entry or pipeline-to-pipeline competition in the Dutch gas transmission network

and

- insufficient flexibility in the charging methodology to produce efficient price signals for the services concerned without amending the RAB valuation methodology.

Against this backdrop, it is notable that a previous study for the NMa concluded that the risk of pipeline-to-pipeline competition and network bypass was limited in the Dutch market.[15] As such, in the absence of any manifest concern with the efficiency of price signals, it may not be necessary to include an additional criterion on efficiency in the assessment framework for the RAB valuation.

[15] Moselle, B. and Harris, D. (2007), 'Assessing pipe-to-pipe competition: theoretical framework and application to GTS', The Brattle Group, December.

Fairness

The criteria proposed by the NMa encompass two different interpretations of the concept of fairness:

- 'fairness to consumers' requires that 'consumers do not pay again for networks whose value has already been factored into energy tariffs';
- 'fairness to investors' requires that the operator should earn a fair rate of return on any investment prudently and efficiently incurred.

The Rekenkamer recommendations clearly emphasise fairness to consumers, while Regulation EC 1775/2005 does not clearly emphasise one particular interpretation over another. The requirement in the Regulation that tariffs include an 'appropriate return on investment' relate more directly to the investors' perspective, but the reference to 'actual costs incurred' could be interpreted as a reference to the consumers' perspective (although, as already mention, the Regulation does not seem to rule out either of the two valuation approaches discussed in this report).

In general, these two interpretations of the fairness criterion are not necessarily exclusive. Indeed, they can coincide if there has been continuity in the valuation method used for regulation purposes.

In the Dutch context, however, the regulatory regime for third-party access introduced after 2001 relied on valuation methods that differed from that used in the regulatory regime before liberalisation. Furthermore, the industry was restructured in 2005, and it is possible that the valuation methods used after 2001 informed the price paid by the acquirer of GTS. This historical context might have introduced a wedge between the original cost of the assets and the value paid by their current owner.

The 'fairness to investor' criterion is important in its own right, but also in terms of signalling the regulator's commitment to cost recovery. Meeting this criterion is therefore important in order to reduce perceptions of regulatory risk and encourage future investment in the wider Dutch energy sector.

That said, in the case of Gasunie, owing to its public ownership, there is a degree of overlap between the interests of gas consumers (who eventually pay for transmission charges) and those of taxpayers (who are the ultimate claimants on Gasunie's profits). This feature of the Dutch context arguably mitigates the distributive effects associated with changes to RAB valuation policies.

Other criteria

The other criteria noted in the European Regulation and the Rekenkamer report (transparency, objectivity, and comparability) appear relatively uncontroversial, although it is worth noting that:

- the objectives of transparency and objectivity may have different facets, such as the auditability of the underlying data and the replicability of the calculations, and that the final weighting of these factors necessarily involves a degree of judgement;
- the objective of comparability might be more important in the distribution sector (where the NMa benchmarks the capital and operating costs of the companies jointly) than in transmission (where the NMa does not currently use benchmarking to the same extent). In the case of transmission, comparability necessarily has to be assessed with an international dimension. While it may be possible to determine which valuation approaches have been used most commonly in Europe, it is difficult to ascertain whether the precise valuation parameters used by other regulators (in terms of asset

lives and inflation, for example) would be sufficiently similar to support a TOTEX benchmarking exercise.[16]

For these reasons, it would be reasonable to place less weight on the comparability criterion than on the other criteria in the assessment.

2.4 Evaluation

This section assesses the valuation methods described in section 2.1 against the criteria set out in section 2.3.

Objectivity

Although the **ODRC** has a firm grounding in economic theory, its implementation involves a large amount of discretion and engineering judgement (notably in considering the service capability of particular assets and the optimisation options for the network). It is not unusual to find that small changes in assumptions can result in significant differences in ODRC values.

The **NBV** and the **DHC** methods rely on reasonably objective data that can be readily audited, and the associated computational requirements are relatively low. However, it is difficult to identify precisely the effect that these methods have had on the revenues recovered by Gasunie or, indeed, on investor expectations with respect to future revenues.

Lastly, the **acquisition value** method also involves a degree of subjectivity, in that it is necessary to control for the value of the unregulated business that the acquirer factored in (which is not directly measurable). Moreover, as argued in section 2.1.2, it is difficult to disentangle the different components of this value.

Overall, it is not obvious that any of the methods is unambiguously superior to the others with respect to the objectivity criterion.

Comparability

It was shown in section 2.2 that European regulators have used different methods to value the initial RAB, and that, as such, it is difficult to conclude that any particular method would best meet the objective of comparability.

Fairness

The fairness criterion is the most important differentiating factor between these methods. In view of the structure of the pre-liberalisation regime, the **NBV** of the transmission network is the most direct measure of the share of capital costs that had not yet been recovered from customers when the industry was restructured in 2005. As such, it appears to be the valuation estimate that most closely matches the notion that 'customers should not pay again for networks whose value has already been factored into energy tariffs'.

If this interpretation of the historical context is correct then, by construction, using the **DHC** methods (both nominal and real) to set the opening RAB *would* lead to customers paying again for costs previously factored into energy tariffs. However, it is possible that the DTe's guidelines have influenced investors' expectations regarding future returns, and therefore that they could be relevant under the 'fairness to investors' criterion.

Similarly, using the **acquisition value** of Gasunie to set the opening RAB could also lead to consumers paying again for costs previously factored into energy tariffs. The acquisition value might reflect the acquirer's expectations of future allowed returns, but it is not obvious that such expectations reflected a firm commitment by the government and the regulator, and it is difficult to disentangle this component from other factors that should not be included in

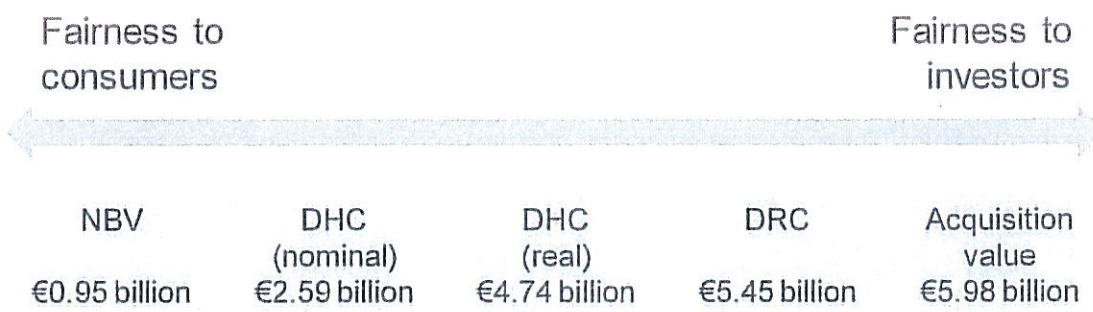
[16] TOTEX refers to total expenditure (operating and capital).

the RAB as matter of principle. While this method would, by construction, meet the 'fairness to investors' criterion, it would probably overstate the minimum value that would meet this criterion.

As explained in section 2.1, the **ODRC** method can, by construction, lead to windfall gains or losses for the company and consumers. It is *not* designed to track the company's historical investments or the consumers' historical contributions towards the cost of such investments. In the case of GTS, this method produces a RAB value relatively close to the acquisition value. This means that it could *de facto* enable the current owner to recover the value of its investment, even though it is not designed to achieve this objective.

Figure 2.2 shows the RAB value for these different methods. (Section 3 provides more detail on the assumptions underpinning these estimates.)

Figure 2.2 Valuation methods and the fairness criterion (RAB values, as at December 31st 2005)



Source: Oxera.

2.5 Conclusions

This section has suggested that:

- the emphasis placed by the NMa on the criterion of fairness (as opposed to efficiency) implies that the historical cost approach is more appropriate than the replacement cost approach for the purpose of setting GTS's opening RAB;
- a range of values could be consistent with the historical cost approach, with some of them more consistent with the notion of 'fairness to consumers', and others more consistent with the notion of 'fairness to investors'.

As noted in section 2.1, the adoption of the historical cost approach for the purpose of setting the opening value of the RAB for the Dutch gas transmission system does not necessarily imply that it is impossible to produce efficient price signals through transmission charges. Where there is a presumption that market participants will respond to price signals for certain services, and that this may have an impact on decisions about new entry and/or capacity expansion, the charging methodology may be designed to produce efficient price signals *for those particular services*. The RAB valuation method determines the total amount of revenues to be recovered from network users. In principle, the regulator still has some discretion with respect to how these costs are recovered from different categories of user.

3 Valuation estimates

This section provides valuation estimates for the different methods identified in section 2, as follows:

- replacement costs (section 3.1);
- historical costs, such as the NBV and DHC methods (section 3.2);
- the acquisition value of Gasunie (section 3.3).

3.1 Replacement costs

Given that the replacement cost approach does not appear to comply fully with the NMa's valuation criteria, this section provides only high-level estimates for illustrative purposes. Should the NMa wish to apply this approach to GTS's price control, further research might be necessary to establish a more precise estimate.

The application of the ODRC method normally begins with the detailed asset register of the company. In principle, this should contain data on the quantity, location, physical condition, age and maintenance of the company's assets. There are then three main steps to determining the ODRC of these assets.

- **Estimate the replacement cost of the assets**—this requires a database of unit replacement costs for standard assets to be built (eg, €m/km of pipeline or €m/MW of compression capacity), and the replacement cost for particular types of asset to be analysed separately.

- **Estimate the economic depreciation of the assets**—this requires the expected total lives of standard assets to be estimated, together with agreement on the treatment of assets still in operation at the end of their expected total life.

- **Optimise the network configuration**—this usually consists of three stages: identifying stranded assets; optimising the system configuration; and optimising elements in the system. In practice, this stage requires extensive engineering modelling.

The approach followed in this section differs from this method in that it:

- inflates the historical costs of GTS's assets to 2005 (instead of applying a bottom-up analysis of their replacement costs in that year);

- takes GTS's network configuration as given (instead of optimising it at the date of the valuation exercise).

The implication of the second point is that the replacement cost estimate delivered by this method will overstate the ODRC (and, therefore, the appropriate value of the RAB if this method were to be retained by the NMa). Notwithstanding this bias, the parameters used for this estimation are as follows.

3.1.1 Choice of index

In principle, the inflation index used to estimate replacement costs should reflect changes in the capital costs of gas transmission. To this end, GTS has built a composite index for the industry, based on various price indexes for different periods (Table 3.1).

The economic rationale for the assumptions used by GTS is unclear. The composite index used for 1963–79 reflects variations in input costs (labour, materials and land), but does not

incorporate any productivity gains that might have arisen in the combination of these inputs. If, for example, wages grow by a certain rate over a particular period, but technological progress means that less labour is needed to lay pipelines, applying a constant weight to wages in the composite index may misrepresent variations in the costs that are in effect borne by network operators. This bias might be significant—a previous study for the NMa suggested that productivity growth for utilities in Europe has tended to be higher than for the wider economy (at least over the past two decades).[17] It is also notable that, in Sweden, where the regulator uses the replacement cost approach to roll forward the RAB of gas networks, the composite index used for gas networks incorporates the costs of engineering and construction, as well as materials (see Table A1.1 in Appendix 1).

Similarly, the index used for 1979–2005 is drawn from the water and sewerage industry, which, while having certain technical similarities to gas transmission, operates in a more urban environment, and might therefore have been subject to different cost pressures.

Table 3.1 Price indices

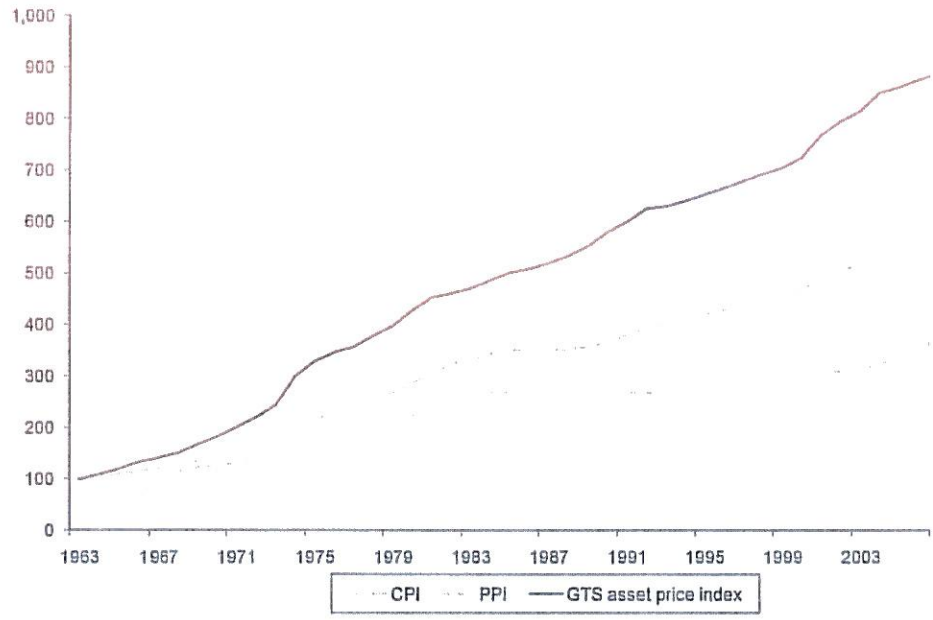
Index	Composition	Source
Consumer price index (CPI)	Goods and services purchased by a regular household	Centraal Bureau voor de Statistiek (CBS, Dutch Central Bureau of Statistics)
Producer price index (PPI)	All manufacturing goods for domestically marketed consumption	CBS
GTS asset price index (also used in the MEA 2008 policy rule)	1946–63: PPI; 1963–79: wages (70%), materials (25%) and land (5%); 1979–2005: civil engineering works for sewerage systems; 2005–07: CPI	GTS (provided by the NMa)

Source: CBS, NMa.

Over the period considered, GTS's index has grown at a much faster rate than both the CPI and the generic producer price index PPI in the Netherlands (see Figure 3.1 below and Figure A1.1 in Appendix 1). The discrepancy observed between GTS's index and the generic PPI is wider than that observed between the PPI for other sub-sectors of the economy and the generic PPI (see Figure 3.2). In other words, the construction of GTS's index seems to assume that the gas transmission industry has been subject to exceptional cost pressures in the economy.

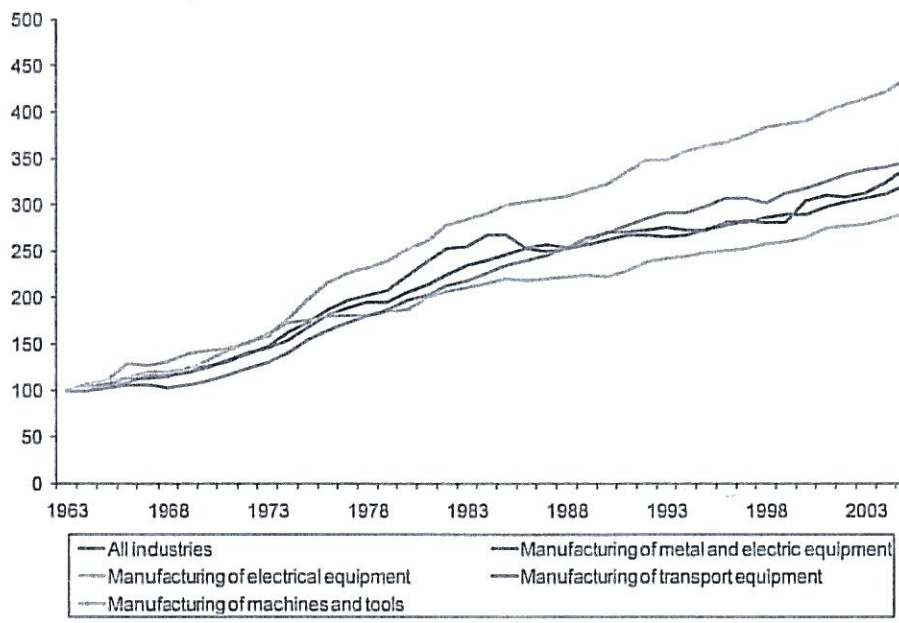
[17] Europe Economics (2006), 'Research into productivity growth in electricity transmission and other sectors', March 7th.

Figure 3.1 CPI, PPI and GTS composite price index (1963=100)



Note: For ease of reference, Figure A1.1 in Appendix 1 shows these indexes rebased in 1990.
Source: CBS, NMa, Oxera.

Figure 3.2 PPI for industry sub-groups (1963=100)



Source: CBS.

On the other hand, experience in other countries indicates that the capital costs of gas networks may indeed deviate from generic price indexes in the economy (Figure A1.2 in Appendix 1 illustrates the deviation observed in Sweden). Therefore, in the absence of any alternative index directly applicable to gas transmission, this study relies on GTS's index. Should the NMa wish to adopt the replacement cost approach for the valuation of the RAB, it might be necessary to undertake an independent study of current unit costs.

3.1.2 Asset lives

Oxera understands that the useful life assumptions used in the most recent method decisions (55 years for pipelines and 30 years for compression) were intended to reflect the expected technical and economic lives of the assets. On the other hand, GTS has recently revised the useful life assumptions used in its accounts to reflect the view that some of its pipelines (those with a positive NBV in 2008) will be used and useful until the end of proven gas reserves in 2063 (see Table 3.2).

In the ODRC method, the depreciation element of the calculation is intended to reflect the notion that, because of technical wear and tear, the 'old' assets of the incumbent may have a lower service capability than the 'new' assets of the hypothetical new entrant. For example, a pipeline built in 1990 will have a lower economic value in 2005 than a new pipeline built in that year. This is because the pipeline built in 1990 can be used until 2045 only (before being replaced), while the new pipeline can be used until 2060.

Considering the prospect of an end in gas reserves, however, it is not obvious that the service capability of old assets is significantly lower than that of new assets. For example, under the assumptions used by Gasunie in the company's accounts, both the pipeline built in 1990 and the pipeline built in 2005 would be used over the same period of time. (In other words, GTS would be able to extend the technical life of the old pipeline until 2063, and the hypothetical new entrant would not be able to use the new pipeline after 2063, even if this were technically possible.)

A mechanistic application of the ODRC method in this context would involve valuing the pipelines expected to be still in use in 2063 at their *undepreciated* replacement costs in 2005. The rationale would be that, because potential new entrants would have to recover their costs over a shorter period of time, the incumbent could charge higher prices to network users before facing the threat of new entry. However, this mechanistic application of the ODRC method would lead to the paradoxical result that an industry facing terminal decline could charge *higher* prices to customers. A more likely implication of the possible decline in gas supply is that the likelihood of new entry in gas transmission is even smaller than it has been in the past, and that the rationale for using the replacement cost approach is diminished (since, in practice, these assets will never be replaced).

For these reasons, and given that the decline in gas supply remains a distant and uncertain prospect, this study relies on the asset lives used in the most recent method decisions (55 years for pipelines and 30 years for compression).

Table 3.2 Asset life assumptions used by Gasunie and GTS

Asset type	Up to 2004	2005–06	2007	2008 and after
Pipelines	20 years	40 years	40 years for pipelines commissioned before 2004, and remaining life to 2044 thereafter	Remaining life to 2063
Compressor stations/ installations	10 years	30 years	30 years	30 years
Buildings	50 years	50 years	50 years	50 years
Other plant and equipment	20 years	3–20 years	3–20 years	3–20 years
Land	Not depreciated	Not depreciated	Not depreciated	Not depreciated

Source: Gasunie accounts.

3.1.3 Results

The resulting DRC value of the transmission network using GTS's price index and the asset lives used currently is €5.45 billion. The equivalent value using the Dutch PPI is €3.99 billion.

3.2 Historical costs

Table 3.3 summarises the RAB values under the NBV, DHC (nominal) and DHC (real) methods. These values were calculated using an extract of GTS's asset register provided by the NMa.

Table 3.3 Historical cost values of the RAB (€ billion)

	NBV	DHC (nominal)	DHC (real)
Asset lives	Pipelines: 20 years	Pipelines: 55 years	Pipelines: 55 years
	Installations: 10 years	Installations: 30 years	Installations: 30 years
Inflation adjustment	None	None	CPI
Value as at December 2005	**0.95**	**2.59**	**4.74**

Source: Oxera calculations, based on the asset register of GTS.

Table A1.3 in Appendix 1 presents additional sensitivities around these estimates.

3.3 Acquisition value

In November 2004, the Dutch Ministry of Finance agreed to pay €2.78 billion for the 50% equity stake in Gasunie owned by Shell and Exxon. The transaction was effective as at January 1st 2005 and excluded the gas supply business, which was spun off to Gas Terra in 2005. Against this backdrop, the 'building blocks' of Gasunie's enterprise value can be estimated as follows.[18]

- **Equity value**—the total equity value of Gasunie implied by the purchase price is **€5.560m**.
- **Debt value**—in December 2004, Gasunie's financial commitments consisted of long-term bonds worth €181.6m and short-term financing facilities worth €1,057.3m (from which a cash amount of €319.4m can be deducted). This gives a net debt value of **€919.5m**. In principle, the enterprise value should reflect the market value of these commitments, but Gasunie's estimates of the fair value of its long-term bonds as at December 31st 2005 (€185.0m) suggest that their book value is a reasonable proxy for their market value.
- **Provisions**—in December 2004, Gasunie reported a small pension deficit of €73.1m and additional provisions associated with post-retirement obligations worth €74.8m. There might be a case for including these provisions in the enterprise value if there were a clear expectation at the time of the transaction that the regulator would not allow GTS to recover deficit repair payments in future price controls. However, Oxera understands from the NMa that the DTe had not clarified its pension policy at the time of the transaction. It is also of note that this deficit was eliminated in 2005, and that this revaluation might have been factored into the purchase price. For these reasons, this assessment does not include pension provisions in the enterprise value.
- **Working capital**—at the time of the transaction, Gasunie had a negative working capital requirement of **€46.9m**. Oxera understands that the regulatory regime did not take account of the costs or benefits of the company's working capital requirement, so this figure is included in the calculation.

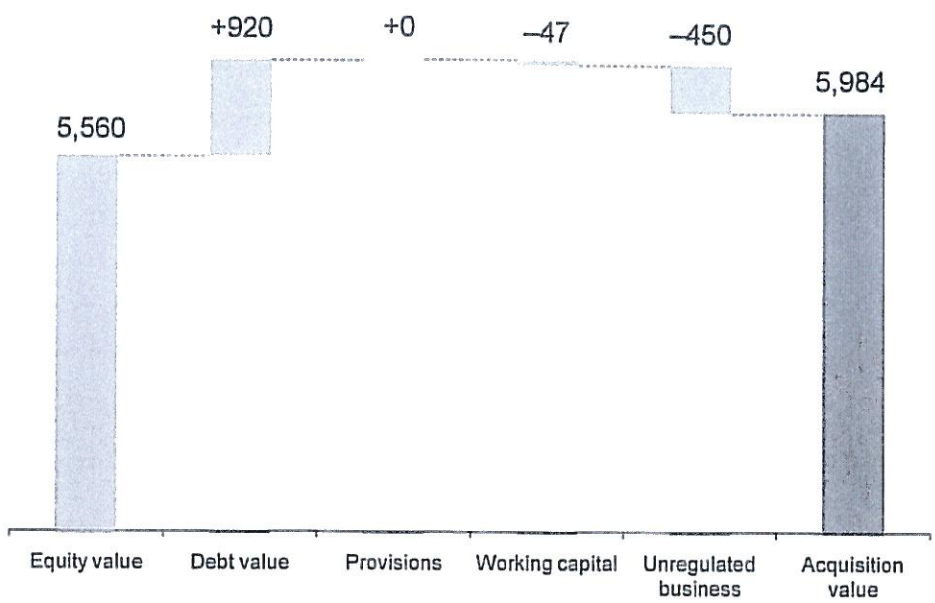
[18] The accounting figures used in this assessment are sourced from Gasunie's 2004 accounts, as restated in the company's 2005 annual report.

- **Unregulated business**—at the time of the transaction, Gasunie was starting to develop interests in an exempted interconnector (the Balgzand Bacton Line), a gas storage project (the Zuidwending salt caverns), an exempted LNG terminal (the GATE venture) and energy exchanges (APX and Eurohub).[19] Gasunie also provided technical advice on a commercial basis via its Gasunie Engineering & Technology division. As most of these projects were still at development stage at the time of the transaction, it is difficult to provide an estimate of the value of these activities that might have been factored into the purchase price.

  When Gasunie began to publish separate financial information for its unregulated business in 2008 and 2009, it reported an operating profit of €49m and €43m, respectively. Discounting the average of these two figures (€46m) to perpetuity at a rate of 10% gives an NPV for this segment of approximately **€450m**.[20] This is a rather crude estimate of the value of the unregulated business, not least because it assumes a degree of foresight on the part of the acquirer and does not assume any particular profiling of future cash flows. Nevertheless, it is not an unreasonable estimate altogether, given the scope of the ambitions expressed by Gasunie in this area at the time of the transaction.

Added together, these items give an implied value of GTS's transmission business of **€5,984m** (see Figure 3.3).

Figure 3.3 Transaction value of Gasunie (€m)



Source: Oxera.

As argued in section 2.1.2, this acquisition value is likely to have incorporated a premium over the acquirer's expectation of the future regulated returns. In the UK, where such transactions are relatively frequent, most acquisitions in recent years have been realised at premia over 20% (see Table 3.4 below).

[19] See Gasunie's annual report 2005.

[20] The 10% discount rate used in this calculation is intended to represent a conservative estimate of the cost of capital of unregulated business (it is 300 basis points above the rate of return recommended by the Minister of Finance for extensions to high-pressure pipelines—see Rekenkamer (2009), 'Tariff regulation energy transport').

Table 3.4 Reported premia for recent UK utility transactions

Company	Date completed	Reported RAB premium (%)
Gas distribution networks (GDNs)	June 2005	14–20
Bristol Water	May 2006	41
Thames Water	October 2006	20
Anglian Water	November 2006	30
Viridian	October 2006	23
South East Water	October 2006	27
Southern Water	October 2007	27
ENW	November 2007	45
Kelda	February 2008	30
EDF Distribution	July 2010	27

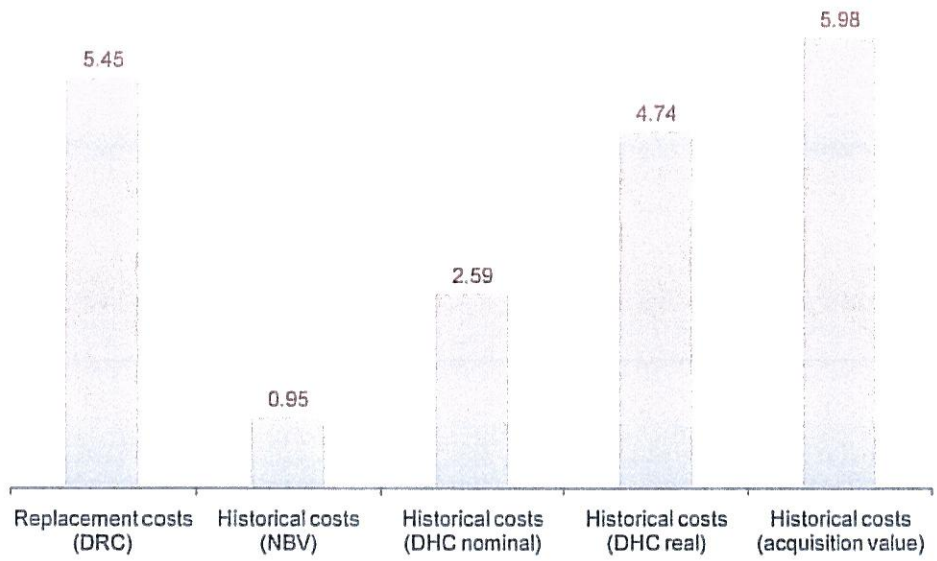
Sources: **GDNs**: National Audit Office (2006), 'Sale of Gas Networks by National Grid', February; **Bristol Water**: *Financial Times*, October 18th 2006; **Thames Water**: Macquarie press release; **Anglian Water**: *Financial Times*, October 18th 2006; **Viridian**: *Irish News*, October 24th 2006; **South East Water**: Westpac press release; **Southern Water**: *Financial Times*, October 9th 2007; **ENW**: *Financial Times*, November 24th 2007; **Kelda**: Standard & Poor's rating report; **EDF Distribution**: EDF (2010), 'Résultats semestriels 2010', press release, July 30th; Dealogic deal profiles.

Should the NMa consider that it is appropriate to allow the Dutch state to recover the acquisition value of Gasunie, but only for the 50% equity stake that was actually purchased in 2004, the relevant value of the RAB would be €3,312m. This is calculated by replacing the equity value of €5,560m used in the calculation above by the sum of €2,780m (the value of the 50% equity stake actually paid to Exxon and Shell in the transaction) and €109m (the book value of the 50% equity stake held by the state at that date).

3.4 Conclusions

Figure 3.4 summarises the RAB estimates produced in this section.

Figure 3.4 RAB estimates (€ billion, as at December 2005)



Source: Oxera.

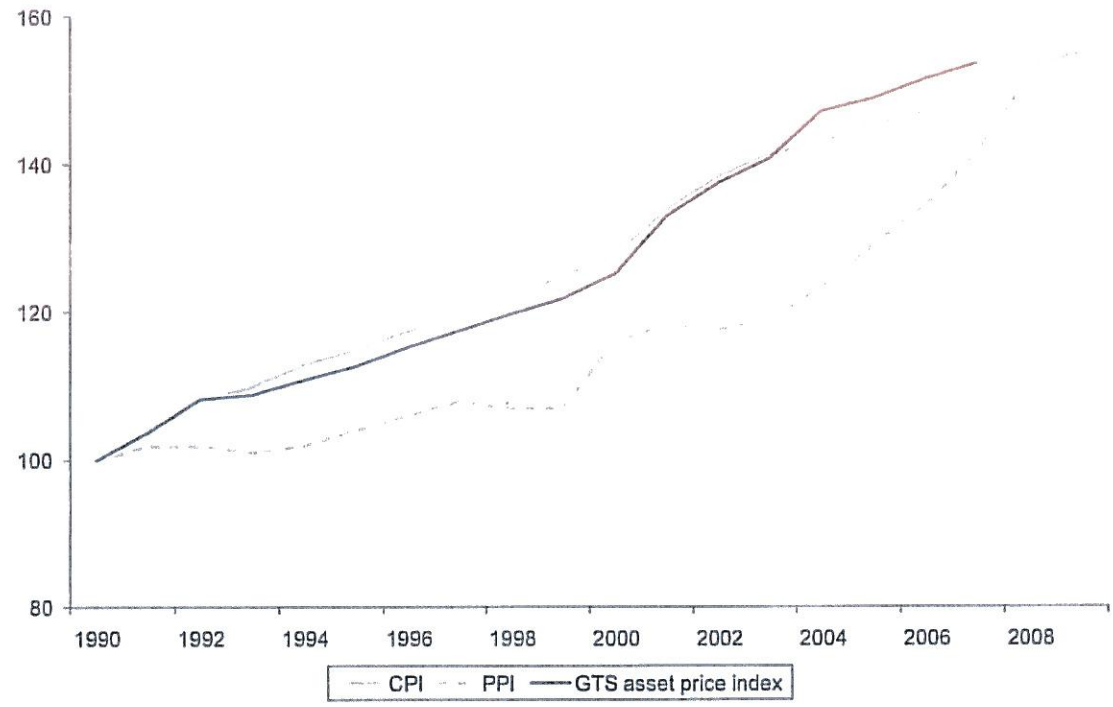
The main uncertainties surrounding these estimates relate to:

- the extent to which the PPI is a good proxy for changes in the capital costs of transmission. A complete review of replacement costs in 2005 would be required to address this issue;
- the extent to which the network configuration could be optimised. A complete engineering study would be required to address this issue;
- the value of the unregulated business factored in the price paid for Gasunie.

The first two uncertainties relate to the implementation of the ODRC method, which does not appear to meet the criteria set out by the NMa. As such, they do not affect the robustness of the recommendations made in this report. The uncertainty surrounding the acquisition value of GTS indicates that this method only partly complies with the objectivity criterion of the NMa.

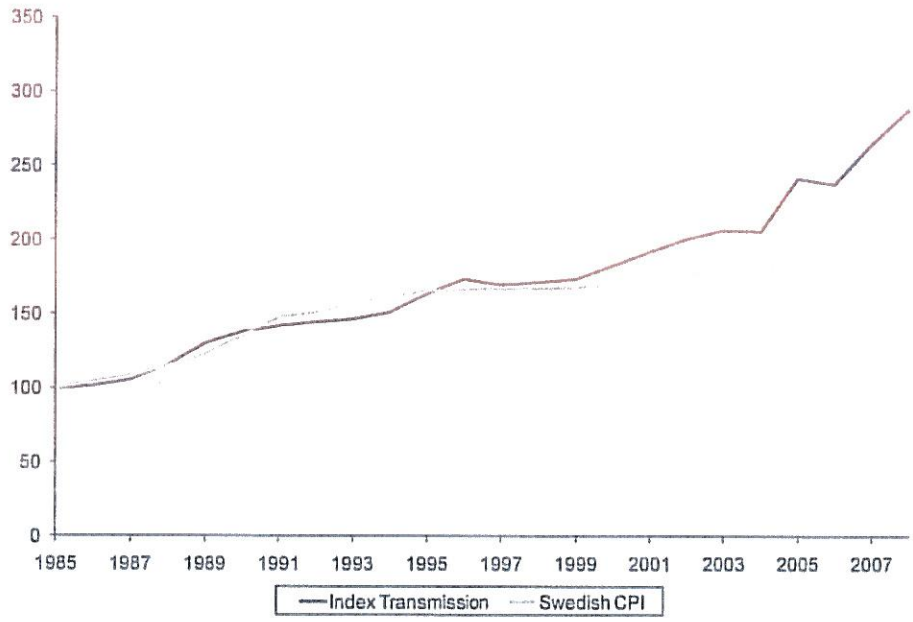
A1 Additional information on RAB calculations

Figure A1.1 Dutch CPI, PPI and GTS composite price index (1990=100)



Source: CBS, NMa, Oxera.

Figure A1.2 Composite price index used by the Swedish energy regulator to roll forward the replacement cost valuation of transmission assets (1985=100)



Source: EI (2009), 'Tillsynsmetod för överföring och lagring av naturgas i Sverige Steg 2 –Fördjupade metodstudier'.

Table A1.1 Composite price index used by the Swedish energy regulator to roll forward the replacement cost valuation of transmission assets (decomposition)

	Costs of:			Composite index transmission
	construction	materials	design	
1985	100	100	100	100
1986	120	88	77	102
1987	96	106	129	106
1988	103	122	141	116
1989	115	145	147	130
1990	120	148	173	138
1991	149	96	185	142
1992	127	140	195	145
1993	129	142	199	147
1994	154	112	191	151
1995	150	154	208	164
1996	148	186	226	174
1997	166	136	219	170
1998	147	157	250	172
1999	181	123	222	174
2000	145	173	287	183
2001	161	195	262	192
2002	197	228	177	201
2003	194	237	203	207
2004	154	223	311	206
2005	180	367	243	242
2006	166	317	321	238
2007	180	371	298	265
2008	214	476	244	288

Source: EI (2009), 'Tillsynsmetod för överföring och lagring av naturgas i Sverige Steg 2 – Fördjupade metodstudier'.

Table A1.2 Depreciated replacement costs calculation by asset class (€m)

	Pipelines	Compressor stations/ installations	Buildings	Land	Metering, computers	Tools, inventory, vehicles	Road and terrain provisions	Total
Asset lives (years)	55	30	30	Infinite	5	10	30	
Historical costs	3,452	1,341	156	17	232	57	3	5,258
Inflated historical costs	10,916	2,838	233	47	324	86	8	14,451
Depreciated historical costs	4,514	713	120	47	47	11	1	5,454

Source: Oxera.

Table A1.3 Depreciated historical costs under different sensitivities (€ billion)

Inflation index	Asset lives: Historical	2005 method decision	Latest IFRS	Historical until 2001, 2005 method decision after 2001
No indexation	0.95	2.59	3.22	1.00
CPI	1.12	4.74	6.82	1.17

Note: 'Historical' asset life assumptions are based on Gasunie's accounting policies up to 2004; '2005 method decision' depreciates pipelines over 55 years and compressor stations/ installations over 30 years; 'Latest IFRS' depreciate pipelines up to 2063 and compressor stations/installations over 30 years. For a full breakdown of asset life assumptions for each asset class, see Table A.1.4 below.
Source: Oxera.

Table A1.4 Asset life assumptions by asset class

	Asset life assumptions		
Asset class in GTS asset register	Historical	2005 method decision	Latest IFRS
01 Regional pipelines	20	55	Up to 2063
02 Gas receiver stations	10	30	30
03 Metering at distance	5	5	5
04 Land	Infinite	Infinite	Infinite
05 Road and terrain provisions	30	30	30
06 Utility buildings	20	30	50
07 Service apartments	20	30	50
08 Design buildings	10	10	10
09 Company inventory	10	10	10
10 Equipment	10	10	10
11 Tools	10	10	10
12 Motor vehicles	10	10	10
13 Trailers	10	10	10
14 Other rolling material	10	10	10
15 Compressor stations	10	30	30
16 LNG installations	10	30	30
17 Mixing stations	10	30	30
18 Calibration stations	10	30	30
19 Gas deposit installations	10	30	30
20 Office buildings	50	30	50
21 Main transport pipelines	20	55	Up to 2063
22 Regional main transport net	20	55	Up to 2063
23 Brigitta pipelines	20	55	Up to 2063
32 M&R stations	10	30	30
33 Export stations	10	30	30
34 Reducing stations	10	30	30
35 Injection stations	10	30	30
36 Air separation stations	10	30	30
37 Computers	5	5	5

Note: The accounting policies in Gasunie's accounts do not provide asset life assumptions for each asset class in the GTS asset register.
Source: GTS asset register, Gasunie accounts.

A2 Additional information on regulatory precedent

Table A2.1 Sources for the information provided in Table 2.3

Country	Source
Ireland	CER (2003), 'Commission's Decision on Transmission Use of System Revenue Requirement and Tariff Structure:1 October 2003—30 September 2007', July 23rd, pp. 5–6.
	CER (2003), 'Transmission and distribution tariffs objectives and principles', consultation document, March 2003.
France	CRE (2003), 'Consultation publique sur les principes d'utilisation des réseaux de transport de gaz', June 2nd.
UK	MMC (1997), 'BG Plc: A report under the Gas Act 1986 on the restrictions of prices for gas transportation and storage services', p. 387.
	MMC (1993), 'Gas: Volume 1 of reports under the Fair Trading Act 1973 on the supply within Great Britain of gas through pipes to tariff and non-tariff customers, and the supply within Great Britain of the conveyance or storage of gas by public gas suppliers: 2 Conclusions to the Fair Trading Act References', p. 48.
Italy	Eni and Snam Rete Gas websites.
Belgium	CREG (2003), 'Lignes directrices concernant la marge bénéficiaire équitable applicables aux entreprises de transport de gaz naturel', June.
	Arrêté royal relatif à la méthodologie pour déterminer le revenu total comprenant la marge équitable, à la structure tarifaire générale, aux principes de base en matière de tarifs, aux procédures, à la publication des tarifs, aux rapports annuels, à la comptabilité, à la maîtrise des coûts, aux écarts de revenu des gestionnaires et à la formule objective d'indexation visés par la loi du 12 avril 1965 relative au transport de produits gazeux et autres par canalisation.
Sweden	EI (2008), 'Tillsynsmetod för överföring och lagring av naturgas i Sverige'.
	EI (2009), 'Tillsynsmetod för överföring och lagring av naturgas i Sverige - Steg 2 – Fördjupade metodstudier'.
Finland	Energy Market Authority (2008), 'Methods of determining the return on transmission system operations during the regulatory period starting on 1 January 2008 and ending on 31 December 2011', Appendix 1, p. 2.

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Ontwerpmethodebesluiten Elektriciteit en Gas 2013

Ondersteuning van VEMW bij beoordeling van de ontwerpmethodebesluiten van de Autoriteit Consument en Markt voor het landelijk en regionaal beheer van elektriciteit- en gasnetten.

11 juni 2013

MANAGEMENTSAMENVATTING

De ACM stelt de WACC voor de landelijke en regionale elektriciteit- en gasnetbeheerders te hoog vast.

SiRM schat in dat de WACC voor de drie jaar vanaf 2014 2,6% in plaats van 3,6% is. De ACM stelt de omzet van de netbeheerders ruim € 210 miljoen te hoog vast. Dat is ongeveer 4,6% van hun omzet.

Dit blijkt uit analyse van de aannames van de ACM bij het vaststellen van de parameters waarmee de WACC berekend wordt. De resultaten van de analyse worden in volgorde van impact op de WACC benoemd:

- Netbeheerders uit de VS zijn niet vergelijkbaar met Nederlandse bedrijven. Zij ondervinden andere regulering. Hun bedrijfsrisico is systematisch hoger. Ze horen dan ook niet thuis in de vergelijkingsgroep. Daarenboven zijn de meegenomen bedrijven uit de VS werkzaam in gastransport, wat de afgelopen jaren enorme veranderingen heeft ondergaan in de VS vanwege de winning van schaliegas.

- Spaanse bedrijven hebben de afgelopen jaren een verhoogd risico laten zien. Dit komt waarschijnlijk door de banken- en overheidsfinanciëncrisis in Spanje. Spaanse bedrijven horen tijdelijk niet thuis in de vergelijkingsgroep.

- De werkelijke risicovrije rente wordt nu het best benaderd door de rente op Duitse staatsobligaties.

- De rente-opslag dient consistent berekend te worden. Vergelijking van de rente-opslag van nutsbedrijven met een single A rating dient te worden gecorrigeerd voor het gebruik van de Duitse risicovrije rente.

- De marktrisicopremie wordt op verschillende manieren berekend in de adviezen die de Brattle Group aan de ACM geeft. De ACM heeft niet onderbouwd waarom zij de hoge waarde kiest.

- De transactiekosten voor het aantrekken van vreemd vermogen dienen op 0 gezet te worden totdat de gereguleerde ondernemingen aantonen wat hun werkelijke kosten zijn..

Inhoudsopgave

1 Inleiding

De Autoriteit Consument en Markt (ACM) heeft op 1 mei 2013 ontwerpmethodebesluiten voor de regulering van landelijke en regionale elektriciteits- en gasnetten gepubliceerd.

VEMW vertegenwoordigt een belangrijke groep van gebruikers van het net. Zij heeft tot 12 juni de tijd om een zienswijze in te dienen. Nadat de besluiten definitief zijn genomen (waarschijnlijk najaar 2013), staat voor belanghebbenden nog beroep open.

In deze rapportage voor VEMW worden diverse aanpassingen aan de bepaling van de WACC in de ontwerpmethodebesluiten van de ACM voorgesteld.

The Brattle Group heeft in opdracht van ACM de voor- en nadelen van de methodes van de Nederlandse Mededingingsautoriteit en de Onafhankelijke Post en Telecommunicatie Autoriteit voor de vorige reguleringsperiode in kaart gebracht (hierna: TBG-I)[1]. Brattle heeft eveneens voor dit besluit de hoogte van de parameters van de WACC voor de komende reguleringsperiode onderzocht (hierna: TBG-II)[2].

2 Risicovrije rente

Volgens TBG-I dienen, in theorie, Duitse staatsobligaties gebruikt te worden om de risicovrije rente te schatten, terwijl de ACM cash flows van gereguleerde ondernemingen eventueel aanpast om te compenseren voor het eventuele hogere risico in Nederland. In de praktijk zou dat onwerkbaar zijn en daarom benadert de ACM de risicovrije rente met het gemiddelde van de rente op Duitse en Nederlandse staatsobligaties. Mogelijk zijn de aspecten waardoor Nederlandse staatsobligaties iets duurder zijn dan Duitse niet relevant voor gereguleerde ondernemingen in Nederland. In dat geval is aanpassing van de cash flow dan ook niet nodig en benadert de Duitse risicovrije rente de werkelijke risicovrije rente beter. De ACM zou dit expliciet moeten bespreken.

Volgens Brattle (maart 2013) was de gemiddelde rente op 10-jaars Duitse staatsobligaties over de afgelopen 3 jaar 2,46%. Op Nederlandse staatsobligaties was de gemiddelde rente over de afgelopen 3 jaar 2,59% (TBG-II p12). Het verschil is 13 basispunten. Dit strookt niet met het Brattle rapport uit november 2011. In deze rapportage is het verschil tussen Duitse en Nederlandse 10-jaars obligaties geplot in een grafiek. Op basis van die grafiek schatten

[1] Brattle, Calculating the Equity Risk Premium and the Risk-free rate, 26 november 2012, www.acm.nl
[2] Brattle, The WACC for the Dutch TSOs, DSOs, water companies and the Dutch Pilotage Organisation, 4 maart 2013, www.acm.nl.

we het verschil op ten minste 30 basispunten[1] (TBG-I p15 fig 8). In deze grafiek zijn de veel grotere verschillen over 2008 niet meegenomen. Dit strookt ook beter met andere opmerkingen in de tekst van Brattle, waar bijvoorbeeld vermeld staat dat in 2012 de rente op Nederlandse 10-jaars staatsobligaties 45 bp hoger is dan de rente op 10-jaars Duitse staatsobligaties (TBG-I p24).

De hogere risicovrije rente op basis van Nederlandse staatsobligaties kan mogelijk gedeeltelijk verklaard worden door lagere liquiditeit van Nederlandse obligaties ten opzichte van Duitse obligaties. Hiervoor hoeven de gereguleerde ondernemingen niet gecompenseerd te worden (TBG-I p18).

In ons scenario gaan we ervan uit dat het verschil in de 3-jaars gemiddelde rente voor Nederlandse en Duitse 10-jaars staatsobligaties 30 basispunten bedraagt. Een eerste schatting van het gebruik van de rente op Duitse staatsobligaties in plaats van het gemiddelde van Nederlandse en Duitse staatsobligaties leidt dus tot een risicovrije rente van 15 basispunten lager. Dat leidt tot een WACC van 0,17% lager ofwel € 37 miljoen minder omzet (0,8%).

3 Rente-opslag

De ACM hanteert een S&P single A rating als uitgangspunt bij de bepaling van de rente-opslag. De gemiddelde risicoopslag van leningen met een maturiteit van 10 jaar voor 'single A rated utilities' over de afgelopen 3 jaar was volgens Brattle's rapport uit maart 2013 1,2% (TBG-II p14).

Deze rente-opslag is berekend ten opzichte van de Duitse risico vrije rente (TBG-II p13). Het verschil tussen de gemiddelde rente over de afgelopen 3 jaar op Duitse 10 jaars staatsobligaties en op het gemiddelde van Duitse en Nederlandse 10 jaar staatsobligaties was 15 bp (zie hoofdstuk 2).

De ACM zou consistent moeten zijn en óf de Duitse risicovrije rente moeten gebruiken óf de renteopslag moeten corrigeren. In beide gevallen gaan de kosten voor vreemd vermogen met 15 bp omlaag.

Verlaging van de kosten van vreemd vermogen met 15 bp leidt tot een WACC die 0,07% lager is. De impact op de omzet is €16 miljoen (0,3%).

[1] Ruwe schatting op basis van periodes vanaf 31 augustus in de grafiek; 2009 (25 bp), 2010 (27 bp), 2011 45 bp) levert gemiddeld ruim 30 bp op.

4 Transactiekosten voor verwerven van vreemd vermogen

De ACM schat de transactiekosten voor het verwerven van vreemd vermogen (non-interest fees in TBG-II) op 15 basispunten. Dit wordt in TBG-II als gegeven aangenomen en verder niet becommentarieerd (p.14).

Het is niet duidelijk of de opgenomen transactiekosten voor het werven van vreemd vermogen de werkelijke kosten reflecteren. De ACM kan de gemiddelde transactiekosten berekenen door die kosten uit te vragen bij de gereguleerde ondernemingen. Zo lang deze kostenpost niet is gebaseerd op werkelijke gegevens dient deze op nul gesteld te worden. Daarmee hebben de gereguleerde bedrijven een prikkel om deze kosten bekend te maken. In de Regulatorische Accounting Regels zou een eenduidig omschreven categorie voor deze kosten kunnen worden opgenomen.

Indien bedrijven geen opening van zaken willen geven, kan de non-interest fee op 0 bp gezet worden. Ceteris paribus leidt dit tot 0,07% lager WACC. De omzet is dan €16 miljoen (0,3%) lager.

5 Marktrisicopremie (MRP)

TBG-I geeft aan dat stabiliteit bij het vaststellen van de MRP belangrijk is (p. 30). Toch was de waarde in de rapporten van november 2012 nog 4,6% terwijl die in de ontwerp-methodebesluiten 5,0% is. De oorzaak van het verschil is niet duidelijk.

Mogelijk ligt het verschil aan de weging. Volgens TBG-I moet gewogen worden met de standaardfout in de schatting van de ERP van ieder land (TBG-I p.20). In TBG-II wordt gewogen met de huidige marktkapitalisatie van de aandelenbeurs in een land (TBG-II p.23). Deze weging leidt tot een niet gemotiveerde stijging van de MRP met 0,4%.

Waarschijnlijk leidt het verschil in weging tussen TBG-I en TBG-II tot de nu gebruikte MRP. Die is 0,4% hoger; 5,0% in plaats van 4,6%. Met een MRP van 4,6% is de WACC 0,16% lager. Dat leidt tot € 35 miljoen (0,7%) minder omzet.

6 Activa Bèta

De gehanteerde vergelijkingsgroep leidt eerder tot over- dan onderschatting van de activa-bèta. Bedrijven uit de VS horen niet thuis in de vergelijkingsgroep. De activabèta van de Spaanse bedrijven in de vergelijkingsgroep zijn in 2012 sterk afwijkend van eerdere jaren. Spaanse bedrijven lijken onevenredig getroffen door de economische crisis en dienen voor deze periode niet meegenomen te worden.

6.1 Eisen aan de vergelijkingsgroep zijn niet correct

ACM eist dat de vergelijkingsgroep uit minstens 10 bedrijven bestaat. Omdat er maar 7 vergelijkbare Europese bedrijven met beursnotering zijn, zijn nog 3 bedrijven uit de Verenigde Staten toegevoegd. Door deze eis wordt de voorspelling niet beter, maar slechter.

Ter illustratie:

Stel we willen het gemiddelde gewicht van een renpaard weten. In een weiland staan 10 paarden. Ze worden allemaal gewogen en het totaal wordt gedeeld door 10.

Dan realiseert zich iemand dat 3 van de paarden in de wei Zeeuwse werkpaarden zijn. De overige 7 zijn renpaarden. Nu worden de 7 renpaarden gewogen en het totaal gewicht wordt gedeeld door 7. Door de 3 werkpaarden niet mee te nemen verbetert de schatting. Het is logisch dat een kleinere groep met de juiste samenstelling een betere schatting geeft dan een grotere groep waarin ook een ander soort paarden is opgenomen.

Bovendien blijkt dat van de 7 renpaarden er 2 ziek zijn, terwijl we het gewicht van gezonde renpaarden wilden weten. De schatting voor het gemiddelde gewicht van een gezond renpaard wordt vervolgens bepaald door het gewicht van de 5 gezonde renpaarden op te tellen en te delen door 5. Het is volkomen logisch dat de schatting nu verbeterd is door de steekproef kleiner te maken.

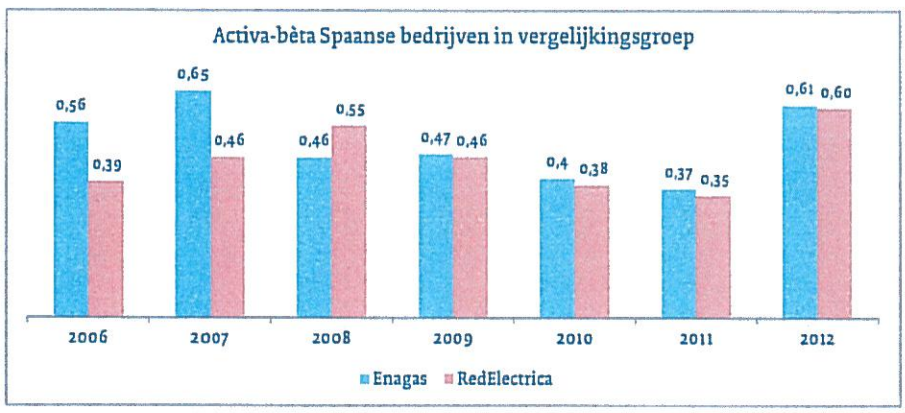
6.2 Spaanse bedrijven niet opnemen

Van de 10 bedrijven in de vergelijkingsgroep komen er twee uit Spanje: RedElectrica en Enagas. De inkomsten van deze bedrijven hangen mede af van de opslag op Spaanse staatsobligaties. Gedurende de bankencrisis van de afgelopen jaren fluctueerden de Spaanse staatsobligaties sterk. Het ligt dus voor de hand om deze uitschieters niet mee te nemen.

De activabèta's van Enagas en RedElectra zijn met respectievelijk 0,61 en 0,60 bijna het dubbele van het gemiddelde van overige Europese bedrijven in de vergelijkingsgroep.

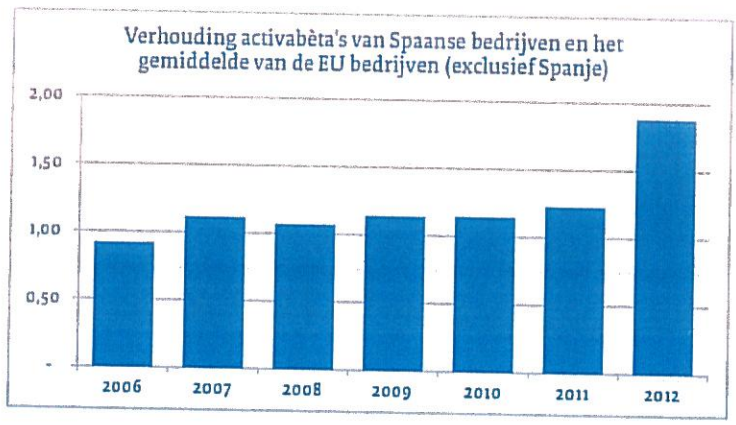
De meting in 2012 laat duidelijk een hogere activabèta zien dan in eerdere jaren (figuur 1).

Figuur 1 Activa-bèta Spaanse bedrijven in vergelijkingsgroep



De waarden voor 2006 tot en met 2011 zijn gebaseerd op dagelijkse correlaties over 2 jaar. De waarde voor 2012 is gemeten met dagelijkse correlaties over 3 jaar. Het ligt niet voor de hand dat de afwijkende meetmethode de hogere activabèta verklaart. Dit wordt nog bevestigd door de verhouding van activabèta's van de Spaanse bedrijven met de rest van de vergelijkingsgroep te analyseren. De verhouding van de activabèta's van Spaanse bedrijven en het gemiddelde van EU landen ligt in de jaren 2006 tot en met 2011 tussen 0,9 en 1,2 terwijl de verhouding van de waarden die ACM in het ontwerpmethodebesluit gebruikt maar liefst 1,9 is (figuur 2).

Figuur 2 Verhouding activa bèta's van Spaanse bedrijven en het gemiddelde van de EU bedrijven (exclusief Spanje)



Gezien de uitzonderlijk hoge activabèta's van de Spaanse bedrijven, dienen de Spaanse bedrijven niet opgenomen te worden in de vergelijkingsgroep.

6.3 Bedrijven uit de VS niet opnemen in de vergelijkingsgroep

Er zijn meerdere redenen om bedrijven uit de VS niet op te nemen in de vergelijkingsgroep:

1. De bedrijven zijn onderworpen aan een ander reguleringsregime.
2. Het gaat om bedrijven die actief zijn in gastransport wat zich de afgelopen jaren in de VS totaal anders heeft ontwikkeld dan in de EU vanwege de winning van schaliegas.
3. Voor de MRP worden Europese beurzen gebruikt.

Gereguleerde bedrijven uit de VS blijken steeds een hogere activabèta te hebben vergeleken met bedrijven uit de EU

Zowel uit kwalitatieve als uit kwantitatieve analyse volgt dat bedrijven uit de VS niet in de vergelijkingsgroep thuis horen.

6.3.1 Ander reguleringsregime

Bedrijven uit de VS zijn onderworpen aan een ander type regulering dan bedrijven uit de EU. Dit leidt tot een ander risicoprofiel van die bedrijven. Om deze reden dienen zij niet meegenomen te worden in de vergelijkingsgroep voor het bepalen van de activabèta. Ook

Frontier stelt[4] *"... the mix of activities engaged by North American energy companies can make them as risky, or even riskier, than their European (or Australian) counterparts."*

De ACM werd al eerder geadviseerd om rekening te houden met verschillen tussen Europa en de Verenigde Staten[5]. Ook gebruikt het Ministerie van I&M voor de bepaling van de activa-bèta van Schiphol alleen luchthavens in de Europese Unie.

De bedrijven uit de VS hebben ook een lagere gearing dan de andere bedrijven (TBG-II) (tabel 1). De lagere gearing is consistent met hun hogere activa bèta. Om een vergelijkbare credit rating te behalen zullen zij namelijk meer eigen vermogen moeten aanhouden. Dit is weer een aanwijzing dat de ACM het risico van investeren in Nederlandse gereguleerde sectoren en daarmee de WACC, overschat.

Tabel 1 Gemiddelde gearing bedrijven uit de VS, niet VS en beiden

Bedrijven afkomstig uit:	Gemiddelde gearing
VS	35%
Niet VS	50%
Allen	45%

6.3.2 Bedrijven in gassector

De drie bedrijven in de vergelijkingsgroep uit de VS zijn allen actief in gastransport. De afgelopen jaren is die markt in de VS zeer dynamisch geweest. Vanwege de winning van schaliegas is de markt daar radicaal anders dan enkele jaren geleden. Het is voorstelbaar dat dit heeft geleid tot een andere correlatie van gastransportbedrijven met de aandelenmarkt dan in de Europese Unie. De bedrijven horen dus niet thuis in de vergelijkingsgroep.

6.3.3 Andere markt

Daarnaast wordt de MRP gebaseerd op Europese aandelenmarkten, terwijl de bèta's van de bedrijven uit de VS zijn bepaald op basis van correlaties met de aandelenmarkten in de VS[6]. Hierdoor zijn de activabèta's mogelijk minder relevant voor de EU.

6.3.4 Activabèta in de VS hoger dan in de EU

De ACM heeft in een eerdere rapportage de ontwikkeling van activabèta's over meerdere jaren laten onderzoeken[7]. De gemiddelde activabèta van de 7 bedrijven in de vergelijkingsgroep uit de VS is 0,50. Voor de 6 bedrijven uit de EU is die 0,37 (tabel 2).

[4] Frontier: "Second opinion on the WACC for the Dutch Gas Transmission System", in opdracht van de NMa, september 2011.
[5] Erasmus universiteit en de Boer & Croon groep, "Syntheserapport validatie vermogenskostenvergoeding TenneT", 5-9-2008.
[6] Nera, "Response to Brattle estimates of WACC for Dutch transmission company", januari 2013.

Tabel 2 Resultaten gemiddelde activa-bèta in de periode 2006-2012 in de EU VS en elders

Gemidelde activabèta	2006	2007	2008	2009	2010	2011	2012	gemiddelde
Anders	0,28	0,25	0,28	0,23	0,22	0,25	-	**0,26**
EU	0,34	0,41	0,43	0,41	0,33	0,30	0,34	**0,37**
VS	0,53	0,52	0,50	0,52	0,48	0,45	0,46	**0,50**
gemiddelde	**0,41**	**0,43**	**0,44**	**0,45**	**0,39**	**0,37**	**0,38**	**0,41**

Voor dit commentaar is op dezelfde groep bedrijven een regressieanalyse uitgevoerd om de impact van Amerikaanse bedrijven op de activabèta ($\Delta\bar{\beta}_{activa,VS}$) te bepalen:

$$\bar{\beta}_{activa} = \bar{\beta}_{activa,niet\,VS} + \Delta\bar{\beta}_{activa,VS}$$

Om de betrouwbaarheid van de schatting niet te overschatten, is de regressieanalyse per jaar uitgevoerd. De resultaten van de schattingen voor de verhoging van de activabèta zijn gepresenteerd in tabel 3.

Tabel 3 Resultaten regressie-analyse impact amerikaanse bedrijven op activa-bèta

Impact van Amerikaanse bedrijven op de activa-bèta	d		d=daily, w=weekly			
	2006	2007	2008	2009	2010	2011
activabèta niet VS	0,40	0,46	0,43	0,37	0,30	0,25
verhoging door VS	0,21	0,13	0,05	0,12	0,14	0,15
p-waarde verhoging	*0,013*	*0,147*	*0,618*	*0,113*	*0,028*	*0,007*

Impact van Amerikaanse bedrijven op de activa-bèta	w		d=daily, w=weekly			
	2006	2007	2008	2009	2010	2011
activabèta niet VS	0,28	0,35	0,44	0,45	0,37	0,35
verhoging door VS	0,16	0,09	0,08	0,10	0,15	0,16
p-waarde verhoging	*0,000*	*0,111*	*0,173*	*0,175*	*0,042*	*0,015*

Er is dus voor alle jaren een hogere waarde voor de VS gevonden. De verschillen waren in drie jaren (zowel voor wekelijkse als dagelijkse bepaling van de bèta), significant ($p<0,05$). Ook in de andere 3 jaren was er een hogere waarde voor de VS. Gemiddeld genomen zou, van 2006 tot en met 2011, de activabèta met ongeveer 0,13 te hoog worden vastgesteld als bedrijven uit de VS worden meegenomen in de vergelijkingsgroep.

6.4 Impact op de WACC

De activabèta dient te worden vastgesteld zonder de Spaanse bedrijven en zonder de bedrijven uit de VS.

De mediaan van de activabèta is dan gelijk aan 0,21 in plaats van 0,35 (tabel 4).

Dit leidt tot een WACC die 0,63% lager is. De omzet is dan € 136 miljoen ofwel 2,9% lager.

[7] Oxera, "Cost of capital for GtS, annual estimates for 2006 and onwards – a report prepared for the NMa", mei 2011.

Tabel 4 Activa-bèta's gesorteerd naar bedrijf en land

Bedrijf	Land	Activa-bèta	Gemiddelde en (mediaan) per gebied		Idem waardes ACM
Snam Rete Gas	Italië	0,35	EU 0,34 (0,35)	EU excl. Spanje 0,24 (0,21)	0,38 (0,35)
Terna	Italië	0,34			
REN	Portugal	0,15			
RedElectrica	Spanje	0,60			
Enagas	Spanje	0,61			
National Grid	VK	0,21			
Elia	België	0,13			
Northwest Natural Gas	VS	0,46	VS 0,46 (0,46)		
Piedmont Natural Gas	VS	0,59			
TC Pipelines	VS	0,34			

7 Conclusie

De ACM schat de vermogenskostenvergoeding voor netbeheerders te hoog in. De impact hiervan voor gebruikers van de landelijke en regionale elektriciteit- en gasnetten is per parameter berekend. Daarbij is gerekend met gegevens uit de vorige reguleringsperiode; een totale gereguleerde activawaarde van €21,6 miljard en toegestane inkomsten van € 4,7 miljard (tabel 5).

Tabel 5 Berekening impact vermogenskostenvergoeding voor netbeheerders per parameter

	ACM	Scenario's met lagere parameters (rest parameters TBG-II)				
		Risk free rate	Risico opslag	Issuance fees	Asset beta	MRP
		10-jaars obligaties Duisland	Consistentie met Duitse obligaties	Zonder transparantie issuance fees =0	Enkel niet-VS bedrijven in peer groepen, gemiddelde	TBG-I in plaats van TBG-II (effect weging?)
risicovrije rente	2,50	2,35	2,50	2,50	2,50	2,50
risico-opslag	1,20	1,20	1,05	1,20	1,20	1,20
kosten van leningen	0,15	0,15	0,15	-	0,15	0,15
kosten voor vreemd verm. voor bel.	3,85	3,70	3,70	3,70	3,85	3,85
activabèta	0,35	0,35	0,35	0,35	0,24	0,35
equitybèta	0,61	0,61	0,61	0,61	0,42	0,61
marktrisicopremie	5,00	5,00	5,00	5,00	5,00	4,60
kosten voor eigen vermogen	5,56	5,41	5,56	5,56	4,60	5,32
vennootschapsbelasting	25%	25%	25%	25%	25%	25%
aandeel vreemd vermogen	50%	50%	50%	50%	50%	50%
verhouding vreemd:eigen vermogen	100%	100%	100%	100%	100%	100%
nominale WACC voor belasting	5,63	5,46	5,56	5,56	4,99	5,47
inflatie	2,00	2,00	2,00	2,00	2,00	2,00
reële WACC voor belasting	3,56	3,39	3,49	3,49	2,93	3,40
nominale WACC na belasting	4,23	4,09	4,17	4,17	3,74	4,10
verschil met TBG-II						
Impact op WACC		-0,17	-0,07	-0,07	-0,63	-0,16
Impact op omzet (EUR,miljoen)		-37	-16	-16	-136	-35
Impact op omzet (%)		-0,8%	-0,3%	-0,3%	-2,9%	-0,7%

In volgorde van impact:

- Het onterecht opnemen van bedrijven uit de VS en Spanje in de vergelijkingsgroep leidt tot een omzet die ongeveer 2,9% te hoog wordt vastgesteld.
- Inconsistentie met de eerdere gepresenteerde waarde van de MRP (4,6% in plaats van 5,0%) leidt tot 0,7% te hoge omzet.
- De risicovrije rente baseren op Duitse obligaties leidt tot 0,8% lagere omzet.
- Inconsistentie van de berekening van de risico-opslag leidt tot 0,3% te hoge omzet.

- Het onnodig verhogen van de kosten van vreemd vermogen met 15 basispunten leidt tot 0,3% hogere omzet.

Als de aangepaste parameters worden gecombineerd, is de impact ongeveer 210 miljoen, ofwel 4,6% van de omzet van regionale en landelijke elektriciteit- en gasnetbeheerders (tabel 6). De WACC is dan 1,0% lager dan de ACM die vaststelt.

Tabel 6 Impact na combinatie van aangepaste parameters

	ACM (E&G)	SiRM
risicovrije rente	2,50	2,35
risico-opslag	1,20	1,20
kosten van leningen	0,15	-
kosten voor vreemd verm. voor bel.	3,85	3,55
activabèta	0,35	0,24
equitybèta	0,61	0,42
marktrisicopremie	5,00	4,60
kosten voor eigen vermogen	5,56	4,28
vennootschapsbelasting	25%	25%
aandeel vreemd vermogen	50%	50%
verhouding vreemd:eigen vermogen	100%	100%
nominale WACC voor belasting	5,63	4,63
inflatie	2,00	2,00
reële WACC voor belasting	3,56	2,58
nominale WACC na belasting	4,23	3,47
Impact op WACC		-0,98
Impact op omzet (EUR,miljoen)		-213
Impact op omzet (%)	-	-4,6%