



Verksamhetsberättelse 2005

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Förord

Nätverket Olja & Gas har lagt ytterligare ett lyckosamt verksamhetsår bakom sig. Medlemsutvecklingen har varit mycket positiv under året då antalet medlemmar ökat från 325 till 420 vilket innebär en ökning med 30 procent.

Nätverket genomförde under 2005 fem seminarier samt en studieresa till Moskva. Nätverket Olja & Gas vidareutvecklade också under året sin hemsida med webbadressen www.nog.se. På hemsidan finns, förutom allmän medlemsinformation, även alla referat från tidigare seminarier och genomförda studieresor. Dessutom finns där också nyheter om exempelvis olja, gas, kol, kommande seminarier, andra konferenser samt ett urval länkar som har koppling till nätverkets verksamhet.

Under våren 2005 framförde huvudfinansiärerna ett önskemål om att ett tydligare markerat intresse från näringslivet skulle eftersträvas. Redan från halvårsskiftet 2005 gick åtta stora energiföretag in som partners till nätverket för att kraftfullt markera att nätverket NOG har en betydelsefull roll att fylla.

Huvudfinansiärer till nätverket är Statens energimyndighet, Krisberedskapsmyndigheten och Ångpanneföreningens forskningsstiftelse.

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Bakgrund

Oljan har en avgörande betydelse för landets energiförsörjning trots årtal av ansträngningar med satsningar på alternativa energikällor för att värna miljön. Speciellt klimatfrågan har kommit att påverka debatten kraftigt. Satsningen på förnyelsebara energikällor som bio-bränslen och vindkraft har resulterat i betydande marknadsandelar som bränslen men endast i marginella markeringar när det gäller elkraftproduktion. I vissa fall finns eller studeras tekniska lösningar på de miljöproblem som till dags dato förts fram mot olika fossila bränslen. Inom överskådlig tid är fossila bränslen nödvändiga för såväl Sveriges som världens energiförsörjning. Mest uttalat är beroendet inom transportsektorn.

Nätverket har två övergripande syften

Vårt samhälle och därmed allas vår välfärd är starkt beroende av tillgång på energi i olika former. Kunskap om alla tillgängliga energiförsörjningsalternativ är således i högsta grad en riksangelägenhet.

Underlag för en bred energipolitisk debatt

Nätverket skall bidra till att ta fram objektivt underlag för en bred energipolitisk debatt. Det är nödvändigt att oljans och gasens betydelse för viktiga samhällsfunktioner är känd och att värdefull kunskap om olja, gas och kol bevaras och utvecklas. Det gäller även i rådande situation då samhällets fokus sedan många år varit helt inriktad på förnyelsebara energikällor. De olika energislagen låter sig olika lätt substitueras. Det handlar om såväl betydande kostnader som det faktum att vissa förändringar tar betydligt längre tid än andra. De tillgängliga alternativens tekniska möjligheter och de kostnader som förknippas med dem måste bli kända. Detta gäller även hushållnings- och besparingsalternativens praktiska och ekonomiska konsekvenser. Förändringarna i teknik och infrastruktur måste bevakas.

Försörjningstrygghet och beredskap

Sårbarheten hos det moderna samhället diskuteras normalt endast sporadiskt. Störningar i elförsörjning och telekommunikationer blir varje vinter diskuterade i samband med snöfall i landets sydligare delar. Däremot tas den underliggande tillgången på energi för given. Internationella kriser kan dock rubba energisystemet i grunden. Trender i energiefterfrågan liksom såväl förutsebara och oförutsebara förändringar i utbudet kan påverka oss på ett avgörande sätt. Möjligheten för att vi skall få uppleva allvarliga störningar i energisystemet kan inte uteslutas. Nätverket skall således verka för att beredskapsfrågorna inom energiområdet lyfts fram och diskuteras. Framsynthet är viktigt och kräver att en aktiv omvärldsbevakning och analys bedrivs och kommuniceras. Riskerna för energikriser bör belysas på ett icke alarmistiskt sätt så att det skapas en förståelse för behovet av beredskapsåtgärder. Energiberoendet och sårbarheten liksom även lösningarna på problemen delar vi med övriga EU-länder varför det är nödvändigt att diskutera beredskapsfrågorna ur ett EU-perspektiv.

Stockholm, maj 2002

Nätverket Olja & Gas genomförde fem seminarier under 2005 med titlarna:

- Hur utvecklas efterfrågan på olja?
- Afrika
- Framtida tillförsel av olja och gas
- Europas beroende av rysk energi
- Oljepriser och dess påverkan på den svenska ekonomin.

En kort genomgång av varje seminarium följer nedan. För seminariernas hela referat se Appendix A - E.

Hur utvecklas efterfrågan på olja?

NOG-seminariet den 10 februari var en fortsättning på NOG seminariet i december 2004 som avhandlade en högtintressant fråga, den om när oljan tar slut. Seminariet den 10 februari fokuserade på vilka faktorer som styr världens oljepris, hur oljepriset fungerar som reglerande faktor för utbud och efterfrågan, om det finns tillräckligt med olja och ifall den kommer att produceras i den omfattning som de förbrukande regionerna vill i framtiden? Seminariets föredragshållare var Julian Lee, energianalytiker från Centre for Global Energy Studies, och Marian Radetzki, ekonomiprofessor från Luleå Tekniska Universitet. Deltagarantalet var 72 personer. För seminariets hela referat se Appendix A.

Afrika

NOG-seminariet den 7 april gav en inblick i Afrika och dess natur- och energiresurser, dess sociala och politiska situation, samt dess generella utveckling speciellt inom olja- och gasproducerande regioner. Föredragshållare var Christer Björklund, seniorkonsult, ÅF, Dr. Shaun McCarthy, VD NextTus Scenarios & Strategy Ltd., och Anders Östman, ekonom och ansvarig för Kenya och generella frågor kring Afrika på SIDA. Deltagarantalet var 46 personer. För seminariets hela referat (på engelska) se Appendix B.

Framtida tillförsel av olja och gas

NOG-seminariet den 9 juni gav en inblick i framtida förhållanden kring tillförsel av olja och gas världen över. Seminariet innehåller både överraskningar och paradoxer i olja- och gassektorn, vikten av goda och stabila förhållanden på olja- och gasmarknaden och vikten av en dialog mellan involverade parter samt en utblick på europeisk och asiatisk olja och gas. Föredragshållare var Dr Robert Skinner Director Oxford Institute for Energy Studies, Mr John Mitchell, Associate Research fellow of the Royal Institute for International Affairs (Chatman House), professor Jonathan Stern, Oxford Institute for Energy Studies, Dr Tsutomu Toichi, Managing director of The Institute of Energy Economics in Japan, och Mr Julian West, Senior director of the Cambridge Energy Research Associates. Deltagarantalet var 88 personer. För seminariets hela referat (på engelska) se Appendix C.

Europas beroende av rysk energi

NOG-seminariet den 13 september fokuserade på de två olika sidorna av energiberoende; den europeiska importen och den ryska exporten. I mer detalj behandlade seminariet den ryska energiexportens historia och dess kapacitet som en "säkerhets-hävstång", ryska gasexportstrategier, EUs energipolicy för upprätthållande och säkrande av tillförselplaner, samt ett europeiskt energiföretags perspektiv på import och energiförsörjning ur dess kunders synvinkel. Föredragshållare var Robert Larsson vid FOI, Per Brilioth, VD Vostok Nafta, Dr Giordano Rigon, Energy Policy and Security of Supply, EU-kommissionen, Jochen Moritz, Chief of section Gas Supply East at E.ON Ruhrgas, och Professor Jonathan Stern, Oxford Institute for Energy Studies. Deltagarantalet var 111 personer. För seminariets hela referat (på engelska) se Appendix D.

Oljepriset och dess påverkan på den svenska ekonomin

NOG- seminariet den 7 december fokuserade på olika aspekter kring oljepriset och dess effekter på samhället. Seminariet var uppdelat i två delar; dels oljeprisets olika drivkrafter och dess påverkan på svensk ekonomi, dels hur oljeprisnivån påverkar den svenska ekonomin. I mer detalj behandlades oljetillgång och – efterfrågans effekt på oljepriset, faktorer som påverkat oljepriset historiskt och påverkar i dagsläget, orsaker till varför oljepriset har stigit så kraftigt de senaste åren, handel med olja, oljeprisets inverkan på hushållsekonomin och på den nationella budgeten. Föredragshållare var Odd Hassel, director, Cambridge Energy Research Associates (CERA), Oslo, Björn Dingsör, oljeanalytiker, Norwegian Energy och Morgan Stanley, London, Chris Glaas, vice president, Morgan Stanley, London, Eva Srejber, 1:a vice Riksbankschef, Stockholm, och Jan Häggström, chefsekonom på Handelsbanken, Stockholm. Deltagarantalet var 107 personer. För seminariets hela referat se Appendix E.

Studieresa

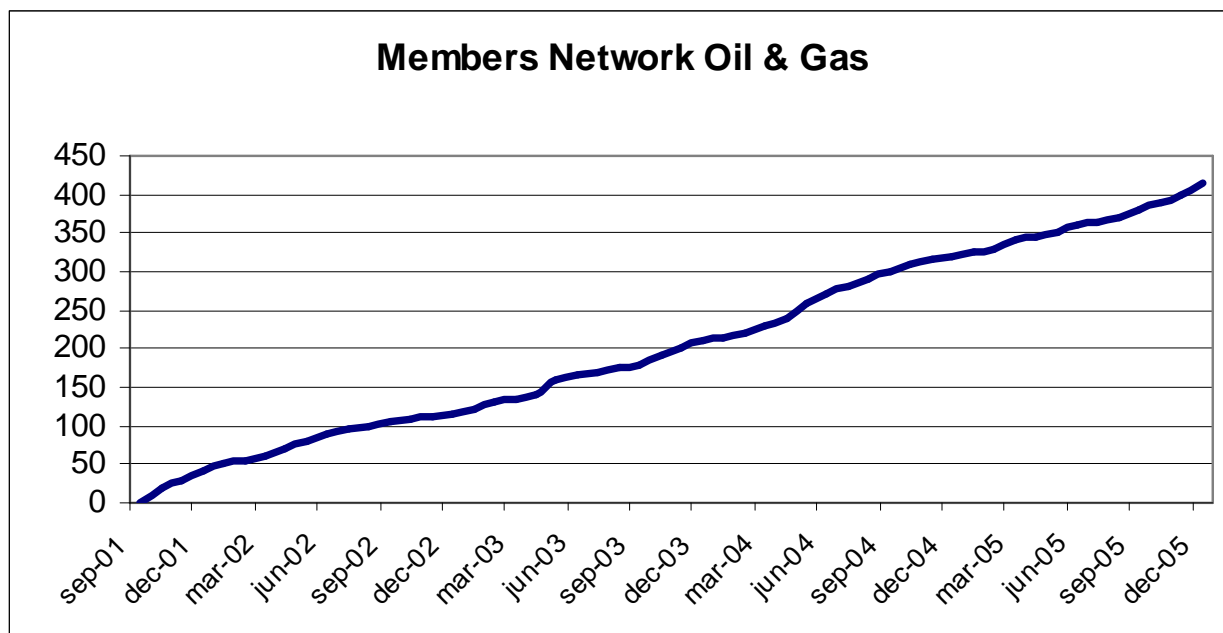
Moskva

Nätverket Olja & Gas genomförde i början på november 2005 en studieresa till Moskva. Under dag 1 besökte sällskapet Moscow Energy Company (MOEK), Svenska ambassaden samt mötte Vostok Nafta och Gazprom över en middag. Under dag två gjordes ett studiebesök på MOSENERGOs 1,3 GW kraftvärmeverk baserat på naturgas.

Medlemsantal

Antalet medlemmar fortsätter att öka

Medlemsantalet ökade under 2005 med 30 %, från 325 till 420 medlemmar från cirka 140 organisationer. En aktiv medlemsrekrytering förekom ej utan skedde endast via anmälning på NOGs hemsida. Medlemmarna kommer från ett brett spektrum av samhället. Trenden från 2004, det om ett ökat intresse från banker, finansbolag, konsulter och privatpersoner, höll i sig även under 2005. Huvuddelen av medlemmarna är dock fortfarande från bensin- och energibolag, myndigheter och departement.



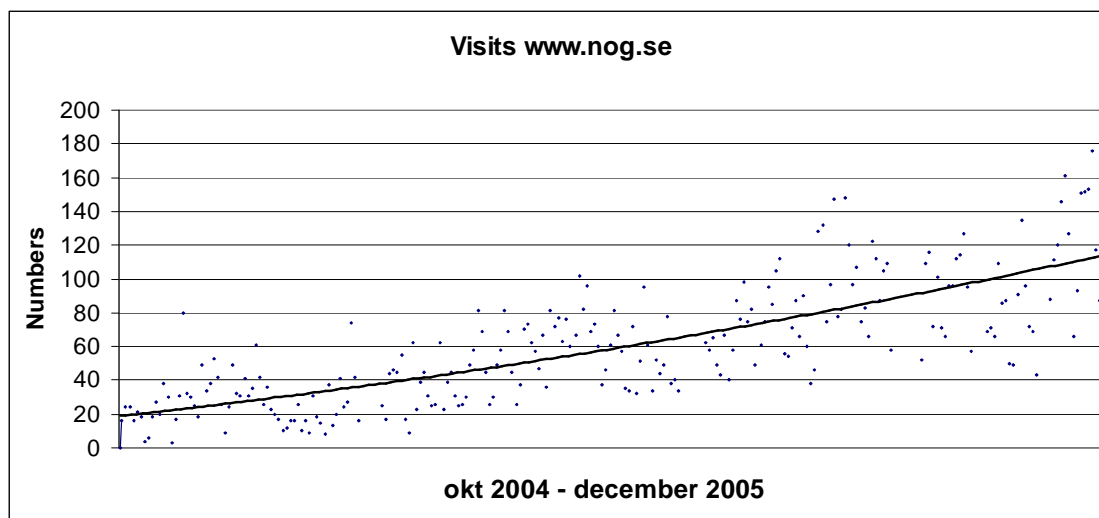
Hemsidan utvecklas och uppdateras

Nätverket Olja & Gas utvecklade under sommaren 2004 en hemsida under adressen www.nog.se. Sidan innehåller information om:

- OM NOG – hur NOG kom till.
- Seminarier – referat från alla seminarier.
- Svensk beredskap – hur gör Sverige?
- Bli medlem i NOG – direktanmäla per Internet
- Några röster om NOG – vilken är nyttan med NOG?
- Medlemslista – vilka är med i NOG?
- Kalendarium – vad händer i världen inom olja, gas och kol.
- Fakta om olja, gas och kol – fakta, analyser, rapporter med mera.
- Nyhetsarkiv – dagsfärska nyheter från världens alla hörn.
- Länkar – länkar till myndigheter, företag, organisationer, nyhetsservice och övrigt.

Sidan har sedan uppstart uppdaterats dagligen med nyheter, rapporter, analyser med mera om olja, gas och kol från hela världen. Sidan innehåller också alltid den senaste informationen kring de kommande seminarierna samt referat från dessa.

Antalet dagliga besök varierar mellan 80 och 180 stycken, vilket är en högre besöksfrekvens än initiiellt under 2004 (20-80 stycken dagligen).



Partners

Som framgått erbjöds ett antal företag ett partnerskap till nätverk från och med andra halvåret 2005. Partnerskapet är ett alternativ till individuella medlemsavgifter för nätverkets alla medlemmar. Lösningen kom till efter en enkätundersökning bland medlemmarna som tydligt indikerade ett svagt intresse för ett nätverk delvis finansierat med individuella medlemsavgifter. NOG är inget yrkesnätverk utan har en viktig roll som ett brett nätverk för att belysa försörjningstrygghets- och beredskapsfrågor i samhället. Ett antal företag fann det angeläget att stötta nätverket utan att ha något till partnerskapet knutet inflytande över verksamheten. De fann det angeläget att forumet lever vidare och utvecklas. Företagen kan ses som åtta företagsmedlemmar i nätverket med ett speciellt ansvar vad avser försörjningstryggheten. Företagen är E.ON Sverige, Fortum Värme, Göteborg Energi, Nynäs Petroleum, Preem, Svenska Shell, Svenska Statoil och Vattenfall.

NOG seminarium 10 februari 2005

David Ringmar
14:e februari 2005

Förord

NOG-seminariet den 10 februari var en fortsättning på NOG seminariet i december 2004 som avhandlade en av nutidens viktigaste frågor; När tar oljan slut? Seminariet den 10 februari fokuserade på vilka faktorer som styr världens oljepris, hur oljepriset fungerar som reglerande faktor för utbud och efterfrågan, om det finns tillräckligt med olja och ifall den kommer att produceras i den omfattning som de förbrukande regionerna vill i framtiden?

Seminariet bjöd på två talare:

- Julian Lee, energianalytiker från Centre for Global Energy Studies
- Marian Radetzki, ekonomiprofessor från Luleå Tekniska Universitet

Julian Lee

Julian Lee är senior energianalytiker vid Centre for Global Energy Studies i London, England. Julian Lee är specialist på oljemarknadsanalys, och främst studier om olje- och gasindustrin i Ryssland, Kaspiska havet och Västafrika. Julian Lee är även redaktör för "Global Oil Report" utgiven av CGES och har en utbildningsbakgrund med en MSc från London School of Economics.

Kan tillgången på olja möta framtidens behov?

Julian Lee frågar sig i sitt föredrag om tillgången på olja kan möta framtidens behov i ett perspektiv till år 2020. Föredraget går först igenom efterfrågan, sedan tillgången och sist hur politiska faktorer ibland sätter ekonomiska regler ur spel.

Historisk efterfrågan på olja

Historiskt sett har efterfrågan på olja varierat kraftigt. Framför allt har priset på olja varit den reglerande faktorn. Från 1965 till 1973 gick oljekonsumtionen från 30 till 56 miljoner fat per dag med ett konstant pris på cirka 2 US \$ per fat. 1973 steg oljepriset nästan 500 % till över 12 US \$ per fat. Denna prisstegring gjorde att efterfrågan sjönk något de kommande åren. Därefter steg återigen efterfrågan till 65 miljoner fat per dag år 1979 och som en följd av detta även att oljepriset återigen höjdes till den då rekordhöga nivån 30 US \$ per fat. Med dessa höga priser hindrades tillväxten i världen och efterfrågan sjönk till under 60 miljoner fat per dag. Oljepriset sjönk därefter kraftigt och höll en prisnivå på mellan 12 till 20 US \$ per fat till år 2003. År 2004 steg återigen oljepriset kraftigt och nådde rekordhöga nivåer över 50 US \$ per fat.

Oljekonsumtionen räknat som olja per enhet av BNP, sjunker i världen och i snabbast takt i den industrialiserade världen. 1973 var världens konsumtion cirka 1,5 fat per 1000 US \$ medan den 2003 hade sjunkit till cirka 0,95 fat per 1000 US \$. Världen minskade alltså sitt oljeberoende med 39 % sedan 1973. Den industrialiserade världen på samma tid med 50 % medan övriga världen minskade med 24 %. För stora nationer som Kina och Indien är oljekonsumtionen av olja per enhet av BNP inte så märkvärdig, men med tanke på att deras ekonomier växer kraftigt samtidigt som oljeimporten ökar gör deras beroende av olja mer och mer utsatt.

Sedan mitten på 1950-talet till den första oljekrisen 1973 var den globala tillväxten av oljekonsumtionen större än den ekonomiska tillväxten. Sedan dess har förhållandet varit tvärtom, det vill säga den ekonomiska tillväxten har hela tiden varit större, cirka 25 %, än tillväxten på konsumtionen av olja. Detta förhållande gäller inte alltid regionalt. I Kina var till exempel tillväxten av efterfrågan på olja under 2004 cirka 15 % medan den ekonomiska

tillväxten var 9 %. Denna enorma tillväxt av efterfrågan på olja hänger samman med Kinas elbrist vilket gjorde att tillväxten på dieselgeneratorer ökade kraftigt i världen. Denna del av efterfrågan förväntas minska under 2005.

Globala prognoser för efterfrågan på olja

Ett antal olika källor har gjort studier på utvecklingen av efterfrågan på olja till år 2020, däribland OPEC, IEA, EIA, Shell och CGES. Från dagens förbrukningsnivåer på knappa 80 miljoner fat per dag har de gjort olika prognoser på efterfrågenivån år 2020 beroende på olika bedömningar av variabler som framtida oljepris, ekonomisk tillväxt, tillgång på olja med mera. De mest dramatiska prognoserna är gjorda av OPEC och EIA som förutspår en efterfrågeökning på 31 miljoner fat per dag till en nivå på 107 miljoner fat per dag till år 2020. IEA spår något lägre med en efterfrågeökning på 28 miljoner fat per dag till en nivå på 104 miljoner fat per dag. Shell och CGES har de mest försiktiga prognoserna och spår en efterfrågeökning på 19 respektive 20 miljoner fat per dag till en nivå på 95 respektive 96 miljoner fat per dag till år 2020. I CGES prognos förutsätts att OPEC behåller prisnivån 30 US \$ per fat. Alla dessa prognoser har en efterfrågeökning på olja på 1,1 % till 1,7 % per år.

– Varför tror då CGES att efterfrågan på olja ska minska?, fråga Julian Lee retoriskt.

Enligt CGES kommer världens ekonomiska tillväxtökning på 3,6 % per år under perioden 1986 till 2004 kommer att minska till 2,9 % per år under perioden 2004 till 2020. Detta beror på framför allt teknologiska förbättringar i fordon kommer öka deras effektivitet, olja får ökad konkurrens av naturgas som bränsle, främst som process- och bostadsbränsle samt att miljöregler i förbrukarländer blir allt hårdare på grund av bland växthuseffekt och andra föroreningar.

Regional historisk efterfrågan på olja

Sedan mitten på 1960-talet har framför allt de 10 största asiatiska ekonomierna ökat sin andel (+17 %) av världens efterfrågan på olja medan USA (-10 %), OECD i Europa (-6 %) och före detta Sovjetunionen (-6 %) minskat sin andel. Latinamerika, Mellanöstern och Afrika har mer eller mindre oförändrad andel av världens efterfrågan på olja.

Oljeintensiteten, d.v.s. förbrukningen av olja per capita, i världen kommer enligt CGES att öka med drygt 4 % medan EIA spår 26 % till år 2020. Om den historiska trenden håller i sig kommer oljeintensiteten att öka drygt 13 % till år 2020. Mycket av skillnaden beror på hur länder som Kina och Indien kommer att utveckla sig. Upp emot 20 % av världens ökning i framtiden kommer att bero på Kinas utveckling.

– Som energikälla kommer olja fortsätta ha en betydande roll till år 2020 och framför allt kommer olja fortsätta att vara viktigt som transportbränsle, spådde Julian Lee. Däremot kommer dess andel som primärenergikälla att minska till förmån för kärnkraft, gas, kol, biobränslen, fortsatte han.

Kan världen producera mer olja?

De begränsande faktorerna för mer produktion av olja är enligt Julian Lee:

- Resurser
- Kapital
- Teknologi
- Politik

Resurser

Enligt Julian Lee finns det två helt olika syner på om det finns tillräckliga resurser i framtiden. Det ena lägret hävdar att oljereserverna egentligen är mindre än de som är publicerade, att framtida upptäckter av nya fyndigheter inte kommer att vara tillräckliga och att oljan kommer att ta slut i snabbast takt i icke-OPEC områden och därefter i OPEC områden. Det andra lägret hävdar däremot att marknadskrafter och teknisk utveckling kommer att resultera i fler upptäckter av nya fyndigheter och att oljeproduktionen kommer att fortsätta att öka i några

årtionden. Enligt Julian Lee har båda rätt sidorna rätt i viss mån och att diskussionen har blivit alltför politisk och personlig.

Däremot råder konsensus om att olja är en ändlig resurs och kommer förr eller senare att ta slut. Detta kan ses bland annat genom antalet borrhälsbrunnar och hur mycket olja som produceras. Ett exempel på detta är att Oman har sedan år 1980 ökat antalet brunnar från 100 till cirka 450, dvs 350 % medan oljeproduktionen ökat från 500 000 till 1 miljon fat per dag, dvs 100 %. Oman får alltså mindre och mindre olja per brunn. Samma trend gäller även för övriga Mellanöstern.

Synen på hur länge oljeresurserna räcker har genom åren förändrats mycket. År 1960 var den totala mängden producerad olja 123 miljarder fat och mängden kvarvarande olja 301 miljarder fat, vilket tillät ytterligare 40 år med den tidens produktionsnivå på 21 miljoner fat per dag. År 2000 var den totala mängden producerad olja 1029 miljarder fat och produktion låg på 67 miljoner fat vilket ger 42 år av kvarvarande reserver. Hur många år som oljan kommer att räcka med dagens produktionsnivå har de senaste 40 åren inte förändrats nämnvärt trots att det har producerats 900 miljarder fat olja sedan dess. Julian Lee betonade att utvecklingen behöver inte fortsätta på detta sätt men helt klart är att synen på hur mycket olja som finns kvar har historiskt sett förändrats kraftigt.

Tillförlitligheten på data om kvarvarande reserver har också diskuterats mycket. Vissa tror att data om reserver är överdrivna och har en "gömd" politisk agenda.

- Den totala mängden olja som har producerats och som finns kvar i marken är cirka 2 000 miljarder fat och inte 3 000 miljarder fat som USGS hävdar, sa Julian Lee.
- Kvantiteten på världens oljeresurser kommer inte vara den begränsande faktorn för tillgången på olja de kommande åren, fortsatte Julian Lee.

Kapital

Enligt CGES kommer framför allt före detta Sovjetunionen och Afrika, 4 respektive 1 miljon fat per dag, öka sin oljeproduktion utanför OPEC till år 2020. Medan Nordamerika, Asien och Europa kommer att minska sin oljeproduktion med 1,5; 2 och knappt 3 miljoner fat per dag. Totalt sett kommer oljeproduktionen utanför OPEC att minska med knappt 2 miljoner fat per dag till år 2020. Men för att detta ska inträffa behöver nya oljefyndigheter påträffas, samt att gamla fyndigheter behöver utvecklas. Investeringar i gamla fyndigheter är ofta lönsamma och utan större risk, medan investeringar i att hitta nya fyndigheter ofta har en större risk.

För OPEC-länderna gäller i viss mån andra förutsättningar. Oljeproduktionen är till 85 % kontrollerad av statligt ägda företag. Dessa företag har ofta andra prioriteringar om vad företagets vinster ska användas till än helt privata oljebolag. Ofta kan frågeställningen för dessa statligt kontrollerade företag vara om de ska utveckla mer produktionskapacitet eller om andra verksamheter inom landet behöver medlen bättre. Många medlemmar inom OPEC är utvecklingsländer med en kraftigt växande befolkning och som har höga förväntningar på avkastningen av landets oljeresurser. Statligt kontrollerade oljebolag tenderar att inte vilja ta stora risker och därmed investera i att hitta nya fynd.

Internationella oljebolag har bättre tillgång på kapital och kan låna till mer förmånliga villkor än vad många statligt kontrollerade företag kan.

- De internationella oljebolagen har den senaste tiden tillväxt genom att förvärva andra bolag, istället för att satsa på ytterligare prospektering, sa Julian Lee.
- Kapital kommer inte att vara en begränsande faktor för den framtida tillgången på olja, fortsatte Julian Lee.

Historiskt sett så har priset på olja påverkat hur många oljeriggas som är aktiva i världen, dvs när priset på olja sjunker så avtar antalet aktiva oljeriggas och på analogt vis så ökar antalet aktiva oljeriggas när priset på olja stiger. Detta samband gäller dock inte i lika hög grad i OPEC-länderna. När oljepriset den senaste tiden har ökat kraftigt har antalet aktiva oljeriggas

i länderna utanför OPEC ökat medan det under samma period ökat marginellt i OPEC-länderna.

Teknologi

– Brist på teknologi borde inte vara ett allvarligt problem för ökad produktion av olja om tillräckligt med kapital finns, sa Julian Lee.

Tekniskt kunnande finns att köpa på den internationella marknaden och används idag av de stora internationella oljebolagen för att hitta nya fyndigheter och för produktion. Under slutet av 90-talet då Ryssland byggde upp sin oljeindustri använde de internationell expertis från internationella oljebolag eller konsultbolag som Halliburton och Schlumberger.

– Däremot har en del statligt kontrollerade oljebolag ibland brist på denna expertis som måste köpas utifrån, sa Julian Lee.

Politik

Innan "oljekriserna" på 70-talet hade de stora oljebolagen stora koncessioner i Mellanöstern. Några av länderna i Mellanöstern tyckte att oljebolagen betalade för lite för sina koncessioner vilket var en av anledningarna till att en del länders oljeproduktion nationaliserades. Sedan dess har de privatägda oljebolagen haft svårt att återigen etablera sin i Mellanöstern. Under "oljekriserna" på 70-talet höjdes priset på olja kraftigt varpå efterfrågan gick ner lika kraftigt i världen. Detta gjorde att mycket av investerad produktionskapacitet under lång tid fick stå outnyttjad i produktionsländerna. 1997 bestämde sig OPEC för att höja produktionskvoten samtidigt som Asien föll in i en kraftig lågkonjunktur med minskad efterfrågan på olja. Detta fick oljepriset att sjunka till cirka 10 \$ per fat. Dessa två episoder har fått de oljeproducerande länderna att vara försiktiga med att investera i överkapacitet. Idag används i princip all produktionskapacitet i världen. På kort sikt är det egentligen bara Saudi Arabien som förväntas kunna öka sin produktion från en dag till en annan.

De internationella oljebolagens stora bekymmer är förändrade regler och politiska regimer i världen. Sanktioner mot olika oljeproducerande länder kan också vara ett reellt hot och problem mot oljebolagens verksamhet som till exempel i Irak, Iran, Libyen och Syrien. Länder där oljebolag har sitt säte förändrar också sitt policyarbete med till exempel ökande miljökrav.

– Alla inblandade i oljebranschen önskar att industrin ska få mer affärsmässiga villkor och mindre politiska villkor, sa Julian Lee. Dock är trenden tvärt emot, fortsatte han.

– Idag fungerar inte oljebranschen under helt affärsmässig villkor utan olja har ofta en parallell politisk agenda, sa Julian Lee.

Regeringar i producentländer väljer ibland bolag på icke-affärsmässiga villkor och diskriminerar bolag från vissa delar av världen. Samtidigt som de internationella bolagens egna regeringar hindrar dem ibland på grund av politiska aspekter att operera i länder. Båda dessa faktorer hindrar affärsmässighet.

– För att kunna producera mer olja i framtiden ligger nyckeln i balansen mellan affärsmässighet och politik, avslutade Julian Lee.

Marian Radetzki

Marian Radetzki är professor i nationalekonomi vid Luleå tekniska universitet. Hans forskning har sedan flera årtionden varit fokuserad på internationella råvaror som mineraler och energimaterial. Radetzki var mellan åren 1989 och 2001 chef för SNS Energy som var ett forskningsinstitut för energiekonomi. Han har även jobbat med Världsbanken, FN och andra internationella organisationer och företag.

Oljepriset och dess förutsättningar

Oljepriset beror på en mängd faktorer, bland annat det faktum att det är en ändlig resurs, kostnader för produktion, kartellbildning, efterfrågan och politik. Det finns också en mängd faktorer som har delaktighet i oljepriset, som till exempel de oljeimporterande länderna, alternativa bränslen och OPEC samt andra exportörer.

Oljeproduktionen har sedan 1980 ökat i världen med 34,1 %, det vill säga från 61,8 till 82,9 miljoner fat per dag. Ökningen har framförallt skett i övriga världen från 6,4 till 21,9 miljoner fat per dag (242 %), men även i OPEC-länderna i Mellanöstern (8,6 %) och OECD (31,3 %). OPEC:s andel av världsproduktionen har under samma tid minskat med 9,3 % på grund av en restriktiv utveckling av produktionskapaciteten. Oljeberoendet har sedan 1980 minskat kraftigt i Sverige. Andelen importerad olja per enhet av svensk BNP har sedan 1980 minskat med cirka 80 % vilket gör att oljans pris har fått mindre påverkan på den svenska ekonomin. Det minskade oljeberoendet kommer av en mer effektiv energianvändning och att alternativ till oljan används i allt större utsträckning. Däremot finns sektorer som fortfarande är lika beroende av olja som tidigare som till exempel transporter och vissa industrier.

Kostnaden för att producera olja varierar mycket över världen. Under 1999 hade Mellanöstern de billigaste produktionskostnaderna med 4 \$ per fat. Därefter kommer de stora internationella företagens produktionskostnader på mellan 6 till 11 \$ per fat. I den relativt begränsade oljeproduktionen i Canadas av okonventionella oljeresurser kostar det på liknande sätt mellan 5 till 16 \$ per fat. För att göra petroleumprodukter av gas kostar det däremot mellan 12 till 16 \$ per fat.

– Med de relativt låga kostnadsnivåerna som finns på olja är det svårt att tro att dagens höga prisnivåer ska bibehållas, sa Marian Radetzki.

Världens kostnader per fat för exploatering och andra investeringar har under perioden 1981 till 1999 minskat med cirka 75 % från 21 till 5 \$ per fat samtidigt som kostnaderna för produktion också har minskat med cirka 50 % från 8 till 4 \$ per fat. Efterfrågan på olja har under perioden 2000 till 2002 vuxit med i genomsnitt 0,5 % per år med det under 2003 till 2004 växte med 2 %.

– Denna kraftigt ökade efterfrågan det senaste året är en mycket viktig förklarande faktor till dagens höga oljepris, sa Marian Radetzki.

En annan förklaring till det höga oljepriset hänger ihop med de problem som finns i de producerande länder, som till exempel krig och terror i Irak, inhemsk opinion i Saudiarabien, strejker i Nigeria med flera vilka somliga lett till produktionsbortfall. Många bedömare säger att dagens höga oljepris har en "terrorpremie" på cirka 10 \$ per fat som kan försvinna med en säkrare värld.

Av den totala produktionen på 28,5 miljoner fat per dag som OPEC står för idag har de, enligt officiella siffror, en överkapacitet på 3,2 miljoner fat per dag. Av överkapaciteten står Irak, Saudiarabien och Förenade Arabemiraten för drygt 80 %. Saudiarabien står i en klass för sig och har en överkapacitet på 1,6 miljoner fat per dag eller 50 %.

Enligt prognoser från välkända organisationer och företag, IEA, IEA, Petroleum Economics, Deutsche Bank m.fl. så tyder allt på att oljepriset kommer att sjunka från dagens nivåer på runt 50 \$ per fat till mellan 18 och 24 \$ per fat till år 2010 och 16 till 27 \$ per fat till år 2020.

Enligt Marian Radetzki är dessa projektioner realistiska prisnivåer i förhållande till de produktionskostnader m.m. som finns för olja.

– Dagens prisnivåer beror inte på att oljan snart tar slut utan mer på grund av att de oljeproducerande länderna hela tiden vill maximera sina vinster. Ett högt pris behöver nödvändigtvis inte vara optimalt utan det är pris gånger producerad volym och därmed intäkten som ska vara optimal för de oljeproducerande länderna, sa Marian Radetzki.

Vilken som är den optimala prisnivån för OPEC har Marian Radetzki studerat under lång tid. OPEC:s främsta mål är att garantera sina intäkter på en säker nivå för att underlätta för budgetplanering i landet. Det andra målet för OPEC är att bibehålla sina marknadsandelar i världsproduktionen av olja. Med dessa förutsättningar spår Marian Radetzki ett optimalt oljepris för OPEC på runt 20 \$ per fat vilket också är den nivå som oljepriset har legat kring stor del av tiden sedan 1985.

På grund av OPEC:s priskartell har de oljeproducerande länderna utanför OPEC producerat för fullt medan länder i OPEC har reglerat sin produktion och därmed oljepriset.

- Om priset på olja fortsatt kommer att ligga på dagens höga nivå så tvingas OPEC att minska sin produktion, sa Marian Radetzki.

Åhörarna ställde efter föredraget av Marian Radetzki ett antal frågor som var variationer på temat att de ekonomiska teorierna nu var satta ur spel på grund av den kraftiga efterfrågan, en sinande produktion och det höga oljepriset. Som svar på detta sa Marian Radetzki:

– Alla oljeproducenter vill maximera sina intäkter. De förbrukande ländernas intressen kommer i andra hand.

NOG seminarium 7 april 2005

Maya Forsberg
15 april 2005

Foreword

The NOG seminar on the 7th of April gave an insight to Africa and its natural and energy resources, its social and political situation as well as its general development, especially in oil and gas producing regions.

The speakers were:

- Christer Björklund, Senior Consultant, ÅF
- Dr. Shaun McCarthy, the Executive Director of NexTus Scenarios & Strategy Ltd.
- Anders Östman, Economist and responsible for Kenya and general issues concerning Africa, on behalf of Sida.

Christer Björklund

Christer Björklund, Senior Consultant at ÅF, is specialized in business, problem and risk analysis, and analysis of development opportunities.

Oil and gas supply in Africa

Christer Björklund, ÅF, introduced by presenting general facts on Africa, focussing on some of the countries with the largest oil or gas reserves, such as Algeria, Angola, Egypt, Libya and Nigeria (see the map of Africa in figure 1, and reserves in figure 2 and 3). The quantities of gas and oil produced in the five countries are presented in table 1, which shows that Nigeria is the leading oil and gas producer with a production of 2 260 million barrels (bbl) oil and 15,7 billion cubic meters of gas per day. To a certain extent there exist oil and gas pipeline systems in the oil and gas producing countries in Africa, but the infrastructure is limited. Algeria, Libya and Nigeria have LNG liquefaction facilities, in total with a capacity of 33,1 million tonnes per year, which corresponds to 23% of the capacity worldwide.

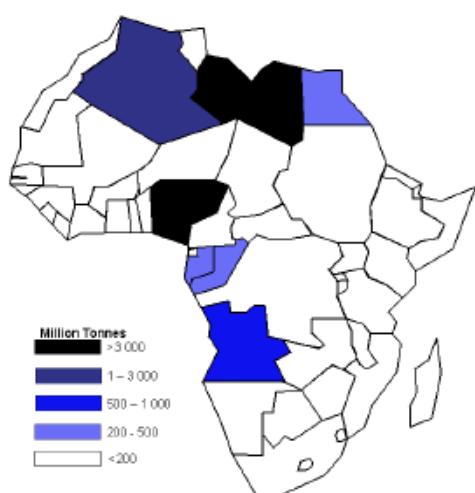


Figure 1. Crude oil & liquids - proved recoverable reserves (end 1999)
Millions of Tonnes

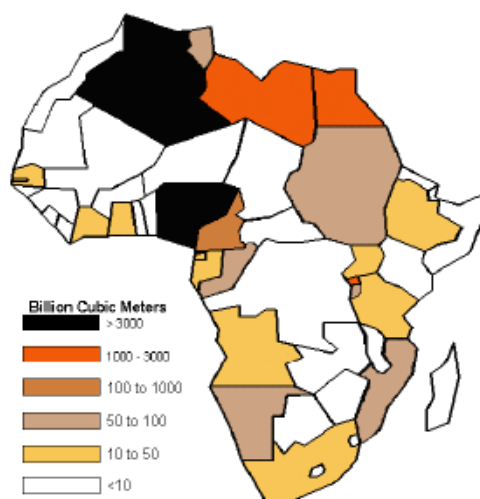


Figure 2. Natural gas - proved recoverable reserves (end 1999)
Billion Cubic Meters

Countries	Oil production, Mill. bbl/day	Natural gas prod, Bill. m ³	Oil, proved reserves. Bill. Bbl	Natural gas proved reserves, Bill. m ³
Algeria	1.52	80.3	13.1	4 739
Angola	0.74	0.53	5.69	80
Egypt	0.82	21	3.3	1 264
Libya	1 429	6.8	30	1 321
Nigeria	2 260	15.7	27	4 007

Table 1. Oil- and gas production and reserves

When looking at the oil and gas situation, other important factors specific to Africa are also important to consider. In order to give a perspective on these five mentioned countries, Christer Björklund compared some of their facts with Sweden. As table 2 shows, all of these countries are between two and five times larger than Sweden and present facts very different from Sweden's. Nigeria, for example, is twice as large as Sweden and has a 15 times larger population. However, the country is facing the challenge of having 5,4 percent of the population infected with HIV/AIDS and a GDP per capita which is almost 30 times lower than Sweden's, although their GDP growth is rising led by oil and natural gas exports. Some countries are also challenged by political instability, including the risk for violent conflicts, due to substantial income gaps and inequality.

Country	Area, km ²	Rel. SE	Population, millions	HIV/AIDS	GDP/cap, \$	GDP, real growth
Algeria	2 382 000	5.3	32	0.1%	6 000	7.4%
Angola	1 247 000	2.8	11	3.9%	1 900	1.5%
Egypt	995 000	2.2	76	<0.1%	4 000	3.1%
Libya	1 760 000	3.9	5.6	0.2	6 400	3.2%
Nigeria	911 000	2	137	5.4%	900	7.1%
South Africa	1 219 000	2.7	43	21.5%	10 700	1.9%
Sweden	450 000	1	9	0.1%	26 800	1.7%
USA	9 631 000	21.4	293	0.6%	37 800	3.1%

Table 2. A country comparison of area, population, percentage with HIV/AIDS and GDP.

-The focus on Africa is increasing, said Christer Björklund. One example is that Africa will be a priority during the UK's chairmanship of the G8 in 2005. In 2004, Tony Blair, the Prime Minister of Britain, launched the Commission for Africa with the task to assess every area of policy on Africa and the challenges it faces and to get international agreement on an agenda for change. The findings were presented in a report called Our Common Interest: The Report of the Commission for Africa, on the 11 of March 2005.

Mr Björklund quoted the actions proposed by the Commission, which include:

- Getting Systems Right: Governance and Capacity-Building
 - Capacity - the ability to design and deliver policies
 - Accountability – how well a state answers to its people
 - Transparency in order to combat corruption
- Leaving No-One Out: Investing in People
 - The Need for Peace and Security
 - Prevent and manage conflict
 - Early warning, mediation and peace-keeping
 - Going for Growth and Poverty Reduction
 - More Trade and Fairer Trade

• Where Will the Money Come From: Resources

The conclusion of the report is that in order to meet the challenges we have to leave our contractual and conditional approaches to the African countries and form new kinds of partnerships, based on mutual respect and solidarity. Christer Björklund added that the Commission for Africa will present its findings to the G8 Summit in July 2005. The intention behind this initiative can be discussed, but nonetheless it is a step in the right direction, concluded Christer Björklund.

Dr Shaun McCarthy

Dr. Shaun McCarthy, the Executive Director of NexTus Scenarios & Strategy Ltd., a specialist in scenarios and crisis management, and former Group Intelligence Co-ordinator at Shell International, has broad experience ranging from global security to energy issues. He recently facilitated the creation of a joint scenarios project focusing on Africa's energy needs for the South African Shell and Council for Scientific and Industrial Research and was instrumental in the development of the governance model and strategy framework for the establishment of the South African National Energy Research Institute (SANERI).

The Strategic Significance of Africa in Energy security

Shaun McCarthy's presentation consisted of:

- A brief macro overview of international geo-political framework for analysis in which he presented the latest in Shell's thinking based their global scenarios (in which he was involved).
- Africa and its new-found strategic significance in the light of the macro framework and energy security, from an OECD perspective
- And finally, he presented a perspective on Africa's energy needs from an African perspective, in order to look at the issue the other way round and to enrich the debate. This view was anchored around energy security, equity and efficiency, which he postulated as being interrelated.

By way of introduction to the topic of energy security, he explained that Oil is notorious as a source of conflict. For example, he mentioned that oil was the reason why the Japanese attacked the Americans at Pearl Harbour in 1941, partly due to the decision by the United States to limit oil exports to Japan in 1941 in response to the Japanese invasion of Manchuria.

Dr. McCarthy pointed out that the question of Africa's role in Energy security can be quite different depending on the viewpoint, and made a distinction between two perspectives. From an OECD point of view it is about security of supply through diversity – where issues such as the availability, transparency of regimes, good governance and stability are important. Whereas from an African or non-OECD perspective, issues such as Equity, Efficiency and Security are very important and interrelated.

He explained that in order to ensure energy security, greater equity or access to basic energy by an ever-increasing population in Africa is essential and also from a socioeconomic/poverty-reduction perspective. Achieving energy efficiency through better utilisation of energy sources, best practices, knowledge transfer and through making the appropriate technology choices is a prerequisite in order to ensure wider access to energy sources by local populations.

Scenario Development: What are key issues and identifying critical uncertainties as drivers of change?

Creating scenarios is a systematic process used to develop plausible, future alternate views of the future and to understand how critical uncertainties may unfold. It is a way of identifying potential opportunities and risks and to model how these uncertainties may develop over

time. In creating scenarios, we develop contextual backgrounds against which scenarios can be used to either develop or test strategies for robustness. The scenario is built up by exploring the key issues, concerns and predetermined factors as well as the critical uncertainties.

Where is the world going in terms of drivers?

In 2001, Shell developed a view of the global environment which challenged the conventional view of the world as characterised by monopolies and boundaries. They identified three important driving forces of change: the forces of globalisation, liberalisation and information technology, expressed in terms of TINA (standing for 'there is no alternative'), which were changing the old world order and which gave rise to a bi-polar or two-worlds perspective, as expressed in the form of two scenarios, 'Business Class' and 'Prism':

Business Class was a world of globally interconnected elites, who sought to achieve market efficiency and promote the concept of a free and global economy, underpinned by the principles of the 'Washington Consensus' model of economic development. In this world, globalisation was regarded as an inevitable and unstoppable phenomenon.

Prism, on the other hand, was viewed as a world where societal norms, values and group identity prevailed. It was not necessarily a world in which market efficiency was rejected, but rather a situation where communities and entities did things their way, individualism was key and the principle of equity was paramount.

However, subsequent events soon challenged this new world view, producing a new set of driving forces and among them the backlash against globalisation as an unstoppable phenomenon was to be severely challenged as witnessed by the demonstrations in Seattle, Cancun and Gothenburg. The 'Washington Consensus' was challenged by a more egalitarian set of principles, sometimes referred to as the 'Washington Contentious' model. In addition, two significant events the terrorist attack against the USA and World Trade Centre on September 11, 2001 and the Enron scandal, followed by further instances of corporate misbehaviour resulted in what Shell described as the dual crises of security and trust. These events brought on a need for new legislation and security measures, stronger fiscal controls, transparency and ethics including governance and compliance – the ability to veto the government and corporations. In the aftermath of 11th September and Enron and other corporate scandals, populations are now looking towards the State to ensure their safety and to regulate the market – thus helping to guarantee their physical and economic safety, said Shaun McCarthy. The overall consequence was the re-emergence of the importance or the role of the State.

Other society expectations identified in 2004 included:

- a changed view on globalisation; that it should be harnessed as a force for the common good rather than pure economic collaboration
- trust was still a key driver in 2004, but it remained low although companies made an effort to regain confidence.

This led Shell to review its global view of the world and the result was the development of a new framework, modified with respect to these observations. It resulted in three new scenarios:

Low Trust Globalisation; a 'prove-it-to-me-world', a legalistic world of courts, lawyers and auditors, intrusive security checks and controls. It is about managing in a world fraught with regulatory change and compliance risk.

Open Doors; a pragmatic world of alliances and greater degrees of trust, one where the State acts through incentives rather than coercion. It is about managing through building reputation, brands and alliances.

Flags; a world of managing country risks, factions and causes. A world where the government uses the concept of nationalism and loyalty to rally divided societies. A world of laptops and lederhosen and the politics of patronage.

The scenarios provide a framework against which the trade offs between Market Efficiency, Security and Societal Cohesion (equity) can be explored. When analyzing a specific country in this context, it can be found influenced by these three forces and is in a state of dynamic tension, he explained.

Scenarios for Africa

With the context of the three global scenarios as backdrop, Shaun McCarthy moved from a Global to a regional perspective, and looked at what this framework could mean for understanding the challenges in Africa, focussing on Sub-Saharan Africa. The key drivers to be considered in relation to Africa are:

- The increase or gradual spread of democracy
- A move towards deregulation
- The spread and devastating impact of HIV/AIDS
- Ongoing conflict and violence
- Calls for Governance and Transparency
- Strategic significance – but prevailing economic marginalisation in the face of globalised markets.

Dr. McCarthy gave a brief background on the oil situation of Sub-Saharan Africa today. Nigeria and Angola produce substantial quantities of oil. Gabon, Equatorial Guinea and Congo-Brazzaville are also producers of oil, but are dwarfed in terms of magnitude by Nigeria and Angola. Angola and Congo are slowly emerging from devastating civil wars, while Nigeria is sporadically affected by conflicts and unrest in the oil-producing region of the Niger Delta and the country is regularly ranked as one of the most corrupt countries in the world. Despite earning over \$100m a day from oil exports, Nigeria and Angola are ranked among the 30 poorest countries in the world. To date, Nigeria has failed to utilise its gains from oil to diversify its economy.

-Sadly, Oil has rarely helped promote peace, progress or prosperity in Africa, said Shaun McCarthy. Just like its other valuable resources, Gold and Diamonds, it has always been a source of conflict – witness Nigeria, Cote d' Ivoire and Sudan.

Moving on to the topic of energy, he emphasised that energy is recognised as vitally important in Africa's development. The New African Partnership for African Development (NEPAD) and the African Union (AU) recognise that energy is the dynamo essential for socio-economic development in Africa. However, energy resources are unevenly spread across the continent. According to NEPAD, access to reliable and affordable energy supply by the continental population must be increased from 10 to 35 per cent over the next 20 years. Furthermore, environmental degradation due to use of traditional fuels must be reduced.

Africa's energy needs were thereafter analyzed in terms of three interdependent aspects Energy Security, Energy Equity (access to energy) and Energy Efficiency.

Energy Security and Access to Energy

For most Africans, energy security cannot be divorced from access to energy and a fair share - Equity. Wealth is very often in the hands of small minorities with larger sections of populations economically disenfranchised. And for many, energy security cannot be separated from efficiency as a means to improve quality of health and to prolong the use of sources of energy. Limited liquidity means that Africa needs to be innovative in applying

technology for energy. Political and social stability, transparency, governance and socioeconomic development are integral elements necessary for growth and investment in energy systems across Africa.

As a developing continent, Africa has a two-fold strategic and security significance. Firstly, it can offer an alternate source of energy supply, given instability in the Middle East as well as the vulnerability of various oil transit routes around the world, such as the Bosphorous, the Malacca Straits, Panama and Suez canals. Nigeria is also the fifth largest supplier of oil to the USA today. It is also an important source of energy for China. Secondly, given its large Muslim population in the north, it may provide a source of stability in the war against terror. Outside South Africa, less than one ten people in Sub-Saharan Africa have access to electricity; 530 million people do not. Even in growing countries such as Uganda it will take 200 years to achieve full electrification at current rates.

Energy & Equity in Africa

In several areas of the developing world, especially in Sub Saharan Africa and South Asia, biomass is used for domestic energy. The consumption will probably not reduce and it will most likely be the predominant source of energy for many communities for the next 30 years.

Moreover, in developing nations, women are responsible for the collection and use of biomass. The WHO estimates that 2.5 million women and young children die prematurely each year from breathing the fumes from indoor biomass stoves (World Bank, 2004).

Hence, the manner in which biomass is used, makes it urgent to increase the efficiency of biomass usage. The energy demand is projected to go from 723 Mtoe in 2000 to 788 Mtoe by 2030 (IEA, WEO 2002). The main drivers are demographics, economic growth, commercial energy use and alternative fuel prices.

There is a very big potential to improve energy efficiency in the use of biomass, through the introduction of modern appliances and technologies. Less efficient devices imply that households will use up the existing resources more quickly, potentially creating tensions over this different – but not less striking – security of supply issue.

In many mega-cities in developing countries, as some research in Lagos indicated, the situation is already tense: with a projected population of over 23 million by 2030 the pressure on gathering of fuel sources will be huge. The link between biomass use and available supply is not very well understood, as overall numbers are subject to uncertainty; nonetheless, the trends that are emerging in many developing countries, the ongoing marginalisation of many inhabitants from basic energy sources, call for urgent action. This necessitates the need for foreign direct investment but a requisite will be increasing transparency and good governance to instil investor confidence, a condition which unfortunately many countries still have a long way to go to accomplish.

Anders Östman

Anders Östman is an Economist and has lived and worked in Africa 15 years in total. His assignments have included being in charge of the Swedish Development Corporation's (Sida) office in Uganda and Mali and working as Head for UNICEF in Rwanda. Today, he is responsible for Kenya and general issues concerning Africa, on behalf of Sida.

Africa in the world

Anders Östman, gave a presentation titled Africa in the world, where he gave more in-depth information on different aspects of its present situation, economic development and the effects of aid.

Africa - rich in resources, but still very poor

Anders Östman started off by underlining that the African continent is gigantic. Within its surface a number of countries can be fitted; China, USA, India, the whole of Europe, Argentine and New Zealand. It is the human birthplace and it has a wealth of natural resources, such as oil, minerals water and land. At the same time it has gigantic problems, such as the spread of HIV/Aids. The African continent is also the one for which it will be hardest to achieve the Millenium Development Goals targets (from UNDPs Multiannual Guidance Programme), hardly any of the countries are expected to reach the aims.

-But Africa works! said Anders Östman.

Africa receives lots of financial aid, and in order to understand its effects it is important to know how the African society works.

-Africa functions differently from what we expect, or from how we imagine it to work. The bonds between the family and the local community are strong, and the way they relate to each other is crucial for their survival. Also, beside the formal structure exists an informal structure, the Neopatrimonial system. It is the traditional chief society adapted to the modern system, and it is important to understand how it functions.

Poverty in Africa

600 million people live in Africa, of which 400 million are living below the poverty line. About one sixth could be considered chronically poor (or extremely poor).

What is poverty? There are many definitions on poverty. They include the aspects hunger, thirst, right to life, home and illiteracy, lack of ability, security and possibilities – or in other words, everything that make it possible to live a dignified life.

According to the UNDP Human development Index 19 of the 20 world´s poor countries are in Africa. The reason to this is according to Anders Östman the lack of economical growth the last 30 years. Between the years of 1981-2001 the growth per capita in Sub-Saharan Africa decreased with 0,7 per cent per annum. This can be compared with East Asia, which during the same period had a growth of +5,9 per cent per annum. Turning the situation involves braking patterns that prevent growth and making people who previously were not participating in the economy take part of it.

Sub-Saharan Africa is the only region where poverty is increasing and where the average average life expectancy is not increasing. More people die from starvation than from all other diseases, such as HIV/AIDS, tuberculosis and malaria. In Sub-Saharan Africa 34 per cent of the population suffers from malnutrition, which is twice as much as in other developing countries. 44 per cent of the population is less than 15 years old. The average income per capita is about eight times larger in Latin America, and five times larger in northern Africa.

How can economic growth be stimulated in Africa?

Reducing poverty is closely related to increasing economic growth, however it is not the only means. There is also a great need to invest in hospitals, schools and infrastructure for the people to be able to participate in the economy. Other factors that play a great role for a country's development are the governance quality, wars, transport costs and literacy. The transport costs in Sub-Saharan Africa are twice as high compared to in Asia, for example.

A large part of the population lives from farming for their own needs. Therefore, in order to increase the economical growth, a modernisation of the agricultural sector is essential. For example, today 4,6 per cent of the land in Africa is irrigated, while the corresponding proportion in Asia is 38,4 per cent. Furthermore, the productivity and the diversification of products are low.

Since the mid 70's (the oil crisis) the private cash flows has almost seized and been replaced by aid, which is one of the reasons why the economical growth stopped. 40 percent of the

foreign investments are directed to oil and minerals and a large part, about 60 per cent, of the foreign investments is directed to three countries; Nigeria, Angola and South Africa. In order to stimulate growth in other African countries, more foreign investments are important. Another important factor is that the rest of the world opens itself for trade with Africa.

Effects of aid on economic growth

Aid has become the main source of financing development in Africa. Africa receives about 20 billion USD in aid yearly and the equivalent of about 5 per cent of GDP in Sub-Saharan Africa is aid. An average country receives about 13% of GDP (excluding South Africa and Nigeria).

Like the first speaker, Christer Björklund, Anders Östman also mentioned that Africa will be one of the priorities during the G8 Summit in Scotland in July 2005. One of the actions proposed is to increase aid from 25 to 50 million USD per year. Anders Östman agrees that it should be increased, but stresses the importance of recognizing aid as part of Africa's problem with low economical growth.

-Today, countries that go through reforms and manage to increase their economic growth and reduce their poverty are not given any more aid. Aid has been seen as a way to reward countries that perform. However, countries that do perform are not given more aid than those that are non-performing, he said.

During recent years, improvements have been seen in economic growth and governance, but reform must be accelerated, according to Anders Östman. Weaknesses in capacity and accountability remain. He believes that aid should be increased, but the corruption, political clientelism and rent-seeking that is going on warrant that some conditionality linked to governance should be applied in advance. It is important to make governments feel responsibility to their own people.

-In many cases the governments have a responsibility towards us and not to their own citizens, said Anders Östman. There is a need to increase their capacity and to enhance the investment climate by modernizing the agricultural sector, improving conditions for selfemployed and for women and young people to take part in the economy, preventing and managing conflicts that modernization creates and by investing in schools, hospitals and infrastructure.

NOG seminarium 9 juni 2005

David Ringmar, Ann Björnsjö

13 juni 2005

Foreword

The NOG seminar on the 9th of June 2005 gave an insight into the future conditions for supply of oil and gas world-wide. The seminar included surprises and paradoxes in the oil and gas sector, the importance of good and stable conditions on the oil and gas market and the importance of a dialogue between the involved parties as well as the European and Asian gas and oil outlook.

The speakers were:

- Dr Robert Skinner Director Oxford Institute for Energy Studies
- Mr John Mitchell Associate Research fellow of the Royal Institute for International Affairs (Chatman House).
- Professor Jonathan Stern Professor Oxford Institute for Energy Studies.
- Dr Tsutomu Toichi Managing director of The Institute of Energy Economics in Japan.
- Mr Julian West Senior director of the Cambridge Energy Research Associates.

Robert Skinner

Introduction

Dr Robert Skinner is the Director of the Oxford Institute for Energy Studies. He is also a former director of the IEA and Vice President of Business Development in Oil Sands for Total Canada.

Energy: Surprises & Paradoxes

Robert Skinner, introduced his talk by noting the while the energy supply sector is comprised of large fixed capital assets that take years to put in place and once in place stay for decades, expectations for the sector and its fuels can change virtually overnight. He illustrated this paradox by the covers of the Economist magazine of March 1999, 'Drowning in Oil' at \$10/bbl, versus October 2003 with oil age ending at \$50/bbl. Confirming this sea-change the price of WTI for delivery 5-7 years out has moved up dramatically since 2003 and to even greater highs in recent months.

Background to oil price increase

Reviewing how we got to current prices, he noted a host of factors under four principal headings: economic, geopolitical, technical and information. The economic factors included the dramatic growth in world GDP to levels not experienced for over 20 years, in particular in China; the effect of low interest rates stimulating consumption in the U.S. The geopolitical reasons included the problems in Venezuela, Nigeria and Iraq, which withdrew oil from the market while demand was rising. The market was further tightened by the virtual elimination of OPEC spare capacity. With the market tight, events such as the terrorist attacks in Saudi Arabia added to nervousness of traders. Strikes of Norway's offshore workers and Hurricane Ivan in the US Gulf Coast at a time when the market needed the quality of crude from these areas sent prices rising even higher. Finally, whether technical or geopolitical, the incremental supply from Russia began to reduce late in 2004. Finally the state of information on supply and demand and its interpretation was important as the IEA's monthly oil market report year on year over-estimated future non-OPEC supply and under-estimated world oil demand with a combined gap of 3,6 mbpd in 2003 and 4 mbpd in 2004.

He noted that the surge in oil demand China and the rest of Asia should not have been a surprise as together they had averaged annual growth of 770 mbpd during the period of 1986 to the Asian Financial crisis in 1997. Coming out of the crisis, China's growth surged, especially in 2003/04 when the combined increase in demand nearly doubled to the exceptional 1300 mb/d/year. The principal source of growth has been diesel oil demand in China for both power generation in power generation sets and for trucks to move coal to power plants. Growth in demand for gasoline and petrochemical feedstock has also been important.

Thus the rise in world oil prices stems from a complex array of factors, the most significant of which is a growth in demand. We are now experiencing problems in refining where inadequate capacity of equipment capable of upgrading heavy grades of crude to produce very low sulphur middle distillate products. Consequently the price of the crudes that yield these products has been bid higher. There may be signs of softening prices, including the IMF's outlook for lower world GDP, US vehicle driving is down and the consumer sentiment is beginning to go wobbly. Other factors might include the expectation that China's demand will soften or at least not repeat its extraordinary performance last year, rising US interest rates, a modest supply response in mature basins, high inventories, pass-through of prices in administered markets in Asia, among other factors. However, the world market faces many wildcards such as weather/hurricanes, road fuel tax in China, Japans nuclear capacities, American gas storage, etc.

Future oil supply

Since 1965 the Non-OPEC, Non-FSU and Non-US producing countries in the world (>40) have managed to increase annual supply by 1 mb/d or more only seven times. Output from this group of producers has declined over the last decade and the contributors to annual increases have changed. Meanwhile output from the Former Soviet Union, having collapsed in the nineties has steadily increased since 2000; had it not, Dr Skinner believes we would have faced higher prices much sooner.

But what about future supply outside OPEC, he asked rhetorically.

Rather than looking at the forty or so non-OPEC oil producing countries, he prefers to look at supply in terms of 'plays' or regions. He defined five categories; 1) mature basins, 2) Russia with its unique political and economic situation, 3) deepwater production where most of non-OPEC growth is forecast, 4) frontier areas where active exploration is underway and 5) unconventional resources such as tar sands, heavy oil, GTL and bio fuels.

The outlook for Non-OPEC production could peak around 2008 – 2012 at around 52,4 mbpd. The supply contributions from these five sources during the period of 2004 – 2010 are approximately: deepwater, 2 mbpd, Russia, 1,4 mbpd, frontier, 1,7 mbpd and unconventional 2 mbpd. Mature basins are expected to decline at 3 to 4%/year resulting in the underlying base of production decreasing by about 5 mbpd, for a net increase of non-OPEC supply of about 2 mbpd during the period of 2004 – 2010. Robert Skinner noted that a critical factor is how fast the mature basins are declining. If higher prices stimulate drilling and arrest the decline rate, the net supply could be greater.

Taking a more empirical perspective, he noted that major new oil projects under development or construction up to 2010, especially from the deepwater areas of the Gulf of Mexico, west Africa and Brazil, along with new projects from the Former Soviet Union, will bring on considerable supply, perhaps peaking in 2006 with more than 3 mbpd and between 2,5 to 3 mbpd gross additions in 2007 and 2008. By 2010 projects drop-off but this is more a reflection of projects not yet having been sanctioned. He stressed that these new supply projects are not in response to today's high oil prices. Quite to the contrary; the deep offshore projects arise because of a combination of new geological concepts from the late eighties and new technologies to detect and access them. The unconventional oil comes

from new technologies and new fiscal regimes introduced by Canada and Venezuela to attract companies to invest in these difficult oil deposits. All of this occurred during a period of very low oil prices, illustrating yet another paradox of oil. The FSU supply of course comes from a recovery from a major geopolitical upheaval with the end of Soviet control.

Forecasts

To further illustrate how our perception of markets and energy supply can change, he showed the history of DOE/EIA's assumption for the wellhead gas price in the US for purposes of their Annual Energy Outlook. These projected gas prices have tended to come down at the backend (in the future) until about 1997 when the backend prices have tended to increase in the annual projections, reflecting a changed perception of the underlying balance of gas supply and demand in North America. What has happened in North American gas, Robert asked.

The change in perception is dramatically portrayed by the shift over one year in the projected contributions of supply from imports of gas from Canada versus imports of LNG. In 2003 the US DOE expected imports from Canada of about 4 Tcf in 2010. But a year later, it changed its outlook down to about 2,5 Tcf, with a corresponding increase in imports of LNG.

The US gas market

North America has less than 5 % of the world's gas reserves but consumes about 30 % of world supply. The US gas production is about 52 Bcf per day which can be compared to the Russian production of 56 Bcf per day.

The North American continent has many sedimentary basins, but the Western Canada Sedimentary Basin (WCSB), Rockies & San Juan Basins and the US Gulf Coast & GOM (USGC) account for most of the continental supply. The WCSB and USGC are in decline or at plateau and the growth is coming from the Rockies & San Juan Basin, with mostly unconventional gas, deepwater GOM and unconventional in other basins, with LNG making up any deficit.

The pattern of US gas consumption between 1949 to 2002, rising from 5 to about 21 Tcf per year in 1971, then falling to about 16 then rising again to 23 Tcf/y recently reflects a very long history of regulation, re-regulation and mis-regulation. Demand by the power sector, industry and commercial account for over 65% of gas demand, underscoring the importance of gas to the US economy. Growth in gas demand has largely been driven by the power sector which added over 250 GWs of capacity since 1998.

Since the late 1960's the US has gone through several waves of power capacity additions: dominated by coal in the seventies, nuclear in the eighties and now natural gas.

The US electricity generation by oil has changed from a peak use in 1978 with 1.75 Mb per day and a use of 0.37 Mb of oil per day in 2002. The generation by gas has increased from a low in 1985 of 7 Bcf per day to a use of 15 Bcf per day in 2002. To underscore his theme of 'how quickly things change', Dr Skinner pointed to North American gas supply since 1990: with gas prices 3 times as high, twice as many rigs drilling twice as many wells up to 20% deeper are finding 1/3rd as much gas, in wells that are stimulated to produce more sooner but decline up to twice as fast as they did in 1990. Yet, what the industry and governments report as "proven reserves" have increased, said Robert Skinner. In 4 years the industry downgraded its projection of gas supply for 2005 by 20%, and this in the most transparent and data intense basins in the world. The seriousness of the situation is illustrated by the fact that 70% of all gas produced in the US comes from wells drilled in the last 5-6 years. Also, all three countries in North America limit access to gas resources and access to markets—yet another paradox of energy—namely, the largest gas market in the world cutting itself off from its own gas and imported LNG, while its economies increasingly depend on reliable gas supply for heating, processes and above all electricity.

Future North American supply will come from unconventional gas (coal bed methane, tight sands and shale), the Arctic and LNG. The proposed Alaska Highway Pipeline from Prudhoe Bay (where 7 to 8 Bcf per day are currently reinjected) faces major hurdles and will likely not be built before 2016.

As for LNG supply, the existing and expanding terminals at Everett, Cove Point, Elba Island, and Lake Charles have 5.8 Bcf/d capacity. Over 50 terminals are proposed, and so far the approved terminals in the US, Mexico and Canada if and when built would provide an additional capacity of nearly 14 Bcf/d. The real issue is whether there will be sufficient LNG supply available. In the future, there will be increased arbitrage of cargos across the Atlantic Basin, which will increasingly connect the North American and European markets. This raises yet another paradox; namely, that the liberalized North American market could result in increased gas prices in the non-liberalized, relatively uncompetitive and protected markets of Europe as North America bids away cargos to meet its growing demand. But, this picture can change very quickly.

John Mitchell

Introduction

Mr John Mitchell is an associate research fellow of the Royal Institute for International Affairs (Chatman House).

Producer-consumer dialogue: deaf or dumb?

John Mitchell's gave a presentation about the importance of good and stable conditions on the oil and gas market and the importance of a dialogue between the involved parties.

The dialogue process

It is important with a dialogue between consumer, producer, state and organisations within the petroleum business to create stable conditions. Today there are meetings of energy ministers from producing and consuming countries every 2 years and non-decisions networks and forums also takes place on a regular basis. On the 9th Forum in Amsterdam 2004 there were for example stable prices, investments, access to capital, technology and markets discussed.

Trade and price stability

In the Atlantic-Med region most of the supplied oil is untraded (produced within the country) or intraregional traded. For the Asia-Pacific region most oil is imported. Gas is for obvious reasons mostly untraded.

The US imported fuel of about 450 Billion \$ in 2003 which was about 10 % of all import. The EU on the other hand imported fuels for about 300 Billion \$ in 2003 which was little more than 10 % of all imports. The Asian countries import less in absolute money but more in percentage of all import, i.e. they have greater fuel dependence than the rest of the world.

The countries that are most dependant of petroleum export are Algeria, Nigeria, UAE, Iran, Kuwait, Saudi Arabia and Venezuela. In these countries 65 % (Venezuela) to 98 % (Algeria) of the total import is paid by petroleum export. In a diagram that Mr Mitchell showed it can be seen that the oil price has been fluctuating since 1860. Mostly within 50 % compared to 5-years average oil prices, but some peaks above 50 %. These fluctuations are a problem and the short term fluctuations are most difficult to deal with. The high price shocks often depend on war, political instability or natural catastrophes. Quotas and inventories are two instruments that can reduce these price shocks. The long term variations are difficult to affect, but are easier to forecast and calculate with.

Other mechanisms that affect the trade of petroleum, but not the price, are;

- State trading
- Subsidies
- Access to services and technology

Investment and diversity of supply

In one of Mr Mitchell's diagram it can be seen that most new and big (> 100.000 b.o.e.d.) oil project will take place in central Asia, Saudi Arabia and other Middle East and West Africa. For gas the corresponding regions are central Asia, West Africa and Russia.

These new oil and gas projects will mostly be carried out by private investors both in countries in- and outside OECD. The exception is oil projects in countries outside OECD, where only half of the projects will be made by private companies.

Mr Mitchell has identified two different ways to protect and promote petroleum investments;

- "Western" legalism, for example;
 - Energy Chartes treaty
 - NAFTA
 - US Investment Protection Treaties
- "Eastern" politics, for example;
 - bilateral forums
 - regional and sub-regional forums

For investments the key problem is security;

- The role of private and state investors must be clear
- There must be equilibrium between petroleum sector and the stat
- Political and/or legalistic processes may clarify

Jonathan Stern

Introduction

Professor Jonathan Stern is an expert on natural gas development, trade, liberalisation, regulation and security worldwide. He is: Director of Gas Research at the Oxford Institute for Energy Studies, honorary professor at the Centre for Petroleum and Mineral Law and Policy at the University of Dundee, and holds fellowships at Imperial College in London and the Royal Institute of International Affairs where he was previously Head of the Energy and Environmental Programme.

Natural Gas: The European Agenda

Jonathan Stern introduced the European gas agenda by identifying 5 important issues; supply, demand, liberalisation and competition, pricing and security of supply.

Background

Gas demand in 34 European countries (including Turkey but excluding CIS countries) was 528 Billion cubic meters (Bcm) in 2003, while production was 319 Bcm. Europe imported 348 Bcm, comprising 37 Bcm of LNG and 311 Bcm of pipeline gas. Of the LNG imports, 69 % came from Algeria and 20 % from Nigeria; of the pipeline imports 40 % were from other European countries and 60 % from outside Europe. Russia provided of 40% of European imports, followed by Norway 20%, Algeria 17% and Netherlands 12%.

European gas trade infrastructure

Pipeline infrastructure between *Norway* and other European countries is well developed with existing pipelines to both the UK and Continental Europe. New pipelines and interconnectors are under construction including Langede connecting the Ormen Lange gas field in Norway to Easington in the UK; the BBL Interconnector between Den Helder in Holland and Bacton in the UK; and an expansion of capacity in the Interconnector pipeline between Bacton and

Zeebrugge. These pipelines will bring much-needed gas to the UK at a time when indigenous production is declining.

There are three pipelines between *North Africa* and the southern European countries– the Trans-Mediterranean and the Maghreb – bringing gas to Italy via Tunisia and Sicily, and Spain via Gibraltar. In 2004, Libya became a new pipeline gas exporter to Italy via the Green Stream pipeline. Two new pipeline projects have been proposed, Medgaz from Algeria to Spain, and Galsi from Algeria to Italy via Sardinia.

The gas infrastructure from *Russia* to Europe is also well developed. There are two major pipeline highways from Russia: the main corridor carrying over 80% of Russian gas to Europe, runs through Ukraine, Slovakia and the Czech Republic. The Yamal Pipeline runs from Torzhok (north of Moscow) to Minsk in Belarus, and thence to Poland and Germany. The Baltic countries are supplied partly with gas from Yamal and partly from the Northern Lights pipeline (via Poland), while Finland receives gas through a direct connection. Russia intends to build the North European Pipeline from Vyborg (near the border with Finland) to Greifswald in Germany, with a possible spur line to Sweden, and possible extensions to Denmark and the UK. The attraction of the North European Pipeline is that it would avoid gas transit through CIS countries which, during the post-Soviet period, has been extremely problematic. In addition, Gazprom has signed Memoranda of Understanding with a number of European and North American companies for two LNG terminals: a small terminal at Ust-Luga, west of St Petersburg, which would take gas from the North European pipeline; and a much larger terminal at Murmansk with gas from the at present undeveloped Shtokmanovskoye field in the Barents sea.

LNG flows and prices

LNG supplies to European countries are expanding rapidly due to decreasing costs throughout the project chain, and the consequent ability of LNG supplies to reach countries on the periphery of Europe more cost effectively than pipeline gas. The major LNG exporters to Europe are Algeria (with liquefaction terminals at Arzew and Skikda) and Nigeria; Egypt is just starting to produce LNG and will become a substantial supplier in the future. The main European LNG importers have been Spain and France, but there are also terminals in Belgium, Portugal, Turkey and Greece. The UK is once again beginning to import LNG at the new Isle of Grain terminal; two additional terminals are under construction. Since 2000, changes in the North American gas market have produced a frenzy of activity in support of LNG imports with multiple terminals under construction and dozens more proposed.

These developments have produced an "Atlantic Basin" LNG market with price arbitrage opportunities increasingly influencing the destination of LNG cargoes. For Trinidad and Nigerian sellers, the netback on sales to Spain is similar, but for Trinidad the US Gulf Coast is a more attractive market. If US gas prices remain substantially higher than European prices – as they have been for most of the past 2 years - a large part of European LNG supplies may end up in North America as new regasification capacity opens up over the next several years. LNG prices in Europe and the US already have a strong connection which, with growth in this trade, will grow even stronger over the next several years.

European gas demand

In 2003, seven countries represented 83 % of European gas demand.¹ The largest are the UK (100 Bcm), Germany (94 Bcm) and Italy (77 Bcm). The IEA projects gas demand in OECD Europe will expand to 550 Bcm in 2010, 680 Bcm in 2020 and 800 Bcm in 2030. Around two thirds of that projected increase in demand is in power generation which would rise from about 100 currently Bcm to over 300 Bcm in 2030. Demand growth in the power sector will be determined by the commercial advantages compared with other forms of generation and changes in price of gas and electricity. Environmental issues as carbon prices, the EU Large Combustion Plant Directive and a possible resurgence of nuclear power are other factors which will have a significant influence on gas/power development.

European Gas Prices

Gas prices have traditionally been based on the principle of costs of alternative fuels, in most cases oil products. Gas prices have been indexed to a basket of oil products (gasoil, heavy/light fuel oil) averaged over nine months with a lag of three months. The advantages of traditional oil-linked prices are that movements are predictable, given oil price transparency, and volatility is avoided through the averaging and time lag mechanisms. The disadvantages are that linkage to oil is decreasingly relevant given end-uses of oil (transport) and gas (heat and power generation); and could be considered “anti-competitive” for end-users because it does not reflect supply/demand conditions and because prices in all parts of the chain are shrouded in confidentiality.

As liberalisation and competition develop in European gas markets, gas prices should be set according to spot and/or futures prices traded on exchanges. The prices should be derived from deep and liquid markets at national or regional hubs. European gas hubs exist in some form in Denmark, Germany, Austria, Italy, France, and Belgium; but the two most active are the TTF in Holland and NBP in Britain. Although there are many potential trading locations, liquidity is limited almost everywhere and is insufficient to create a credible price index.

The experience from North America and the UK suggests that when gas to gas competition arrives, prices decouple from oil, and drop to low levels for a period of years (15 years in North America and 5 years in UK). Prices then recover as demand increases and/or supply surplus is extinguished, and become volatile, possibly recoupling with oil.

Liberalisation, competition and industry restructuring

The 1998 EU Gas Directive in support of liberalisation and competition in gas markets came into force in 2000. A second Directive coming into force in 2004 showed a determination to accelerate liberalisation and a new EU Regulation on Access is likely to be implemented in 2006. An important criterion of the degree of competition in a liberalized gas market is the percentage of large gas users which have switched supplier. By 2004, more than 50 % of large gas users had switched in Britain and at least 30 % in Belgium, Denmark, Ireland, Netherlands, Italy and Spain. The northern parts of France are also approaching the 30 %. By contrast, in Germany and Austria, very few customers had switched supplier. One of the major obstacles to competition has been the creation of a small number of “mega-utilities” from mergers of gas and electricity companies since 2000. European energy utility markets have become dominated by a few hugely powerful players and this does not inspire confidence for the future of competition and liberalisation.

Natural gas security

Security of supply of natural gas can be analysed under four main headings:

- the availability of reserves, and ratio of reserves to production
- the degree of import dependence of national and regional markets and the market power of exporters
- the willingness and ability of market players to make multi-billion dollar investments, and the question of whether these will be supported by long term contracts.
- contingency planning for short term emergency events.

Of these four issues, it is contingency planning for emergency events which today appears the most urgent security problem for governments and market players to address.

Conclusions

- In order to realise the potential of gas fired power generation, the link with oil product prices needs to be broken and replaced with either a gas or an electricity index.
- The liberalisation and competition agenda may have run its course, defeated by the major players in the EU gas market, unless DG Comp in its sector investigation can succeed where DG Tren has failed.

- Without liberalisation and competition, prospects for the development of market hubs and the breaking of the oil price link are bleak.
- Atlantic Basin LNG trade appears to be increasing and may remove any supply overhang from Europe in the late 2000s, and may also introduce an element of gas to gas pricing but against North American markets.
- The most important supply issues are about commercial, specifically price, risks rather than security.

A perspective on Sweden

Sweden is a very small gas market on the periphery of Europe where new supply alternatives are likely to be high cost because of long distance and small scale. Perhaps the only way to substantially increase the Swedish gas market would be in the power production sector, but this will depend on the phase-out of nuclear power. However, around 2010, Sweden may have opportunities to take gas from Norway and from Russia due to new pipeline initiatives by those suppliers.

† UK, France, Germany, Netherlands, Italy, Spain, Belgium

Tsutomu Toichi

Dr Tsutomu Toichi is the managing director of the Institute for Energy Economics in Japan.

Asia/World Energy Outlook and Regional Cooperation in East Asia

Dr. Toichi first talked about the oil price, which has increased from about 20 US\$/Bbl in September 2001 until about 50 US\$/Bbl today. The driving forces for the high oil prices have been several;

- growth of oil demand, especially in China and US
- limited spare capacity
- geopolitical risks in the middle east
- OPEC wants higher revenues

Some key issues for the future have been identified by Dr. Toichi;

- impacts on oil demand by higher prices and by environmental regulations
- about 80 % of proved oil reserves are under control of national oil companies
- access to oil reserves for international??? oil companies
- framework for trade and investment between oil producers and consumers

Some future trends for fuel prices were presented. The oil price is assumed to exhibit a moderate increase until 2020. The forecast for the natural gas price is that it will grow, but less than the oil price. The coal price is assumed to undergo a shallow rising trend, and has no definite correlation with the oil price.

A world primary energy prognosis was showed, but it might have to be revised in the future due to higher oil prices and new environmental regulations. According to the prognosis oil and gas will have the largest growth worldwide until 2020, but also coal will increase a lot. Oil will remain the single-largest energy source in 2020 and the use of gas will be as extensive as the use of coal. In Asia coal is and will remain the single-largest energy source and coal and oil will increase the most until 2020. The increase in oil demand is partly due to the huge rise of vehicles in China. The increase in gas demand is mainly because of escalating requirement for new power generation. Dr. Toichi also showed diagrams of CO2 emissions in Asia and worldwide. For obvious reasons the CO2-emissions will increase in proportion to the increase in use of fossil fuels.

According to Dr. Toichi there are two main energy challenges in East Asia;

- it is a mismatch of demand and supply, where some regions are facing energy shortage, at the same time as there are huge undeveloped energy resources in eastern Russia

- it is and will be even more environmental pollution in China. CO2 emissions increase rapidly and the plants are mostly run without flue gas treatment

Oil demand in East Asia is mainly imported and for Japan and Korea it mostly comes from the middle east. The market for LNG is growing in East Asia.

Japans policy about the energy situation in East Asia is as follows;

- to assure energy security
- to pursuit energy diversification and “best mix” in Asia
- to act on global warming issues

Dr. Toichi sees a need for worldwide networks for these kinds of questions.

At the end of his presentation Dr. Toichi answered a question if it is possible to continue to increase GDP at the same time as the CO2-emissions will remain constant in Japan. He said Japan has strict rules demanding energy efficiency, also for the industry. Environmental issues are important in Japan and the regulations can be fulfilled without affecting the GDP growth.

Julian West

Introduction

Mr Julian West is an expert in strategic analysis and portfolio management in the global upstream oil and gas business from the Cambridge Energy Research Associates.

World Liquids Capacity Outlook

The background to the high crude oil prices lately are among others the little spare capacity, strong demand and geopolitics.

The spare capacity has fallen dramatically since mid 80´from a level of about 18 percent spare capacity of world demand. The rising OPEC production in the late 80´s and the Gulf war in the beginning of the 90´s reduced the spare capacity to about 3 % of world demand. The spare capacity has since then climbed a bit up to levels of 5 to 6 percent but has lately fallen again to very low levels due to demand peaks that boosts OPEC production again and reduces spare capacity. The spare capacity are expected to build up the next year.

Another classic determinant of the oil price are the US crude oil stocks. The historic range of the stock during the period of 2000 to 2003 has been between 270 to 330 million barrels. During the past year the stock was fairly low but has climbed significantly during the beginning of the 2005 to record levels. The US crude oil stocks are not be mixed with the Strategic Petroleum Reserve.

Between 1995 to 2003 there are a clear relationship between the inventories of oil stocks and price of WTI, but the pattern has changed the last year. The last year the price has moved up from the previous price range of about 25 to 35 \$ to about 35 to 55 \$ while the inventories has a relatively small variation.

CERA Models

Cambridge Energy Research Associates are producing models of the future supply of oil based on two scenarios;

- “Supply expansion” model which is a sum of activity of operating companies with CERA interpretations of start up, plateau and depletion rates. It acknowledge major unpredictable but with no disruptions. In this model there will be a surplus of oil of about 7,9 mbpd in 2010.
- “Delays and disruption” model which counts with delays of major projects during construction phase, higher decline rates, lower reserves, diminishing returns from

technology and other constraints for more supply such as politics etc. In this model there are also a surplus in supply in 2010, but much tighter, of 3 mbpd.

World Oil Outlook

In the outlook done by CERA there will be a shift in the world production and supply of oil to 2010. Traditionally strong production regions such as the US, Western Europe will have a decline in production to 2010. Other regions such as Canada, Latin America, Africa, Middle East, Caspian Area and Russia will increase their production. Especially Africa, Russia and Caspian Area are predicted to almost double their combined production between 2000 and 2010. The Far East are predicted to more or less maintain its production to 2010.

In the increase of production over the period of 2004 to 2010 9.1 mbpd comes from Non-OPEC and 8.9 comes from OPEC. The Non-OPEC countries are Russia, Caspian Area, Angola, Brazil, Canada, Sudan and others with small contributions. On the OPEC side every OPEC country are predicted to increase its production with largest increase from Nigeria, Iran, Iraq and Algeria.

The NON-OPEC countries will, according to the outlook, increase its production from the current level of about 48 mbpd to 56 mbpd in 2020. The OPEC countries will also increase its production from the current level of 37 mbpd to about 50 mbpd in 2020. The OPEC countries are projected to increase modestly to 2010. Between 2010 and 2020 the increase in production are thereafter greater. On the long-term oil supply growth there will be a structural change with 15 countries dominating. In 1995 the top 15 producing countries had a market share of 55 %. Today it is 61 % and will continue to rise to 69 % in 2015.

The share of special liquid component of world production capacity will also rise to 2020. Gas-related liquids such as condensates and NGL's and ultra deepwater and extra heavy oil have today a share of 21.9 % and will rise to 29.6 % in 2010 and 34 % in 2020. The deepwater liquids capacity growth will increase from today's level of about 4 mbpd to 9 mbpd in 2010. The increase will be seen in the Atlantic basin on the coasts of West Africa and Latin America. The trend to 2010 is that light and heavy qualities will increase and the medium quality will decrease.

The significant, more than 100 million barrels, world oil discoveries in 2004 have been several, especially in Africa and also in Asia. Since 1995 the global discoveries have been each year between 4.77 and 19.08 billion barrels. In 2004 the discoveries were 13.29 billion barrels. On gas the significant, more than 1 Tcf, discoveries on the same period were between 43.7 to 116.8 Tcf. In 2004 the discoveries were 63.2 Tcf.

The OPEC 10's spare capacity are showing a slow increase. In 2004 the spare capacity was 1.9 mbpd and CERA projects the increase to 2.2 in 2005 and 3.3 in 2006 mbpd.

According to the CERA model the demand will increase from the current level of 82 mbpd to about 86 mbpd in 2007 and 92 mbpd in 2010. The supply has a current maximum level of 85 mbpd and will increase to 92 mbpd in 2007. Thereafter CERA projects to different scenarios; in the "Delays and disruption scenario the supply will be 94 mbpd in 2010 and the Supply expansion scenario the supply will be 98 mbpd in 2010.

- The world did not leave the stone age because there was not enough stones and the same will happen with oil, Julian West concluded.

Conclusions

1. The liquids capacity are set to rise as much as 16 mbpd by 2010 and far outstripping likely demand increase.
2. Both OPEC and Non OPEC show strong gains to 2010.

3. Deepwater projects show a strong increase to 2010. But the question is if this is sustainable.
4. There has been a moderate level of exploration activity in 2004, but a number of significant discoveries rode to recent peak levels.
5. Crude steam composition evolving a greater proportion of light and heavy components.
6. Post 2010 the challenges will intensity, especially for the Non-OPEC countries to expand its liquid capacity.
7. There are important implications the oil price.
8. "Peak oil" remains out of sight.

NOG seminarium 13 september 2005

David Ringmar
25 september 2005

Foreword

The NOG seminar on the 13th of September 2005 focused on the two sides of energy dependence, the European import and Russian export. In more detail the seminar treated the history and capability of Russian energy export as a security levers, Russian gas export strategies, European Unions energy policy of conservation and security of supply plans, a European energy company's perspective on import and energy security in the perspective of the firm costumer.

Speakers were:

- Mr Robert Larsson at the Swedish Defence Research Agency
- Mr Per Brilioth CEO at Vostok Nafta
- Dr Giordano Rigon at Energy Policy and Security of Supply at the EU-Commission
- Mr Jochen Moritz Chief of section Gas Supply East at E.ON Ruhrgas.
- Professor Jonathan Stern Professor at the Oxford Institute for Energy Studies.

Robert Larsson

Introduction

Mr Robert Larsson is a security analyst specialising in Russia's energy strategy and international relations within the CIS, the Caucasus in particular. He is currently employed by the Department for Security Policy and Strategy at the Swedish Defence Research Agency (FOI) and has previously been a guest researcher in Georgia.

Security Dimensions of Russia's Energy

Mr Robert Larsson started his speech by pointing out that his task in this context is to identify and analyse threats concerning Russia's development and energy policy instead of targeting business opportunities and possibilities as many of the other speakers and members of the audience do. Mr Robert Larsson thus presented selected finding on Russia's energy policy on the basis of research carried out by the Swedish Defence Research Agency (FOI). His presentation included the following sections; point of departure, Russia's perception, Russia's capabilities, Russia's energy weapon and finally results, risks and consequences.

Point of Departure

Europe needs imported energy now and likely even more in the future. By setting economics and geology aside, the question Mr Robert Larsson asked and tried to answer was if "Russia is a reliable supplier from a political/security point of view?" To answer this question, the perceptions and intentions of energy and security in Russia as well as Russia's energy capabilities, i.e. can the Russian government do what they intend to do, were assessed.

Perceptions and Intentions

The Russian energy strategy shows an urge to control. It shows that Russia aims to be strong and independent. One-sided dependence is sought after. This means that Russia strives to avoid becoming dependent on others for exports and transit while it at the same time seeks to make other actors dependent on Russia. Russia also sees energy as a tool to avert geopolitical, macroeconomic and other threats, for example energy blackmail that have been the case by Turkey and Turkmenistan in negotiations of gas contracts. Russia explicitly states that it will use its energy policy as a security tool, but at the same time it attempts to be a reliable trading partner.

There is, especially within the political leadership and bureaucracy, an obsession with security. Judging from public statements, the energy strategy and conducted policy, the Russian government is willing to conduct marketization, but never ever on the expense of security. It holds (and intends to hold) control over key firms, reserves and strategic infrastructure, also in the future. Clashes in views between state bodies and even within the Kremlin yet exists, but the “hardliners” opinion matter the most – security and state control is priorities. The conclusion to be drawn of the Russian perception and their intention regarding energy is that energy is both seen as offensive and defensive, both as a sword and a shield.

Energy Capabilities

Russia’s energy policy must be seen in the light of its general development and the general trend in Russia is one of increased state control. Powers have been transferred to the state, to Kremlin and to Putin himself. Kremlin has come to control all important state bodies and key firms. The Parliament, the Duma, has for example become a conveyor belt for presidential decisions and all committees related to energy and natural resources are dominated by Putin’s party Unity with support from Communists or Zhirinovskiy’s “neoliberal party”. None of these are keen supporters of market economy. Also concerning the regions, key companies, infrastructure etc. Kremlin’s powers have been strengthened, especially after 2003.

The tendency is also that the informal control powers of Putin’s have been strengthened. Putin has given the *Siloviki*’s, the people with a background in the security sector, increasing powers. In fact the degree of *Siloviki*’s within the highest echelons of power is much higher today than within the Soviet Union. Even the formal responsibilities for economic matters have been given to the clandestine services. Even if there is no common agenda among these people, there is a similar mindset within these groups where security is top-priority and problems are seen as zero-sum games that only can have one winner. Putin has also appointed loyal people to basically all important boards of the energy corporations, for example Gazprom, Rosneft, UES and Zarubezhneft. The result, and conclusion, from this is that there is a high responsiveness of the energy sector. Basically, Kremlin’s wish in strategic matters can be implemented. This is important when it comes to usage of energy as a political weapon.

Energy as a Political Weapon

Russia’s energy exports can be used as a tool or a weapon for other reasons than managing the energy sector. The use of this tool/weapon can be done in several ways, for example by usage of debts, infrastructure take-overs and supply interruptions.

The targets of the energy tool/weapon are basically weak states within the Former Soviet Union, such as the Baltic countries, Belarus, Ukraine, Moldova and Georgia. The common parameter is that they are objects of actions beyond “normal market behaviour”. But there is a strong correlation between economic and politics and the line between politics and economics of Russian state owned companies are not always easy to see, as transparency is missing and many actions are shielded from insight. Yet, the real reason, if there is any, does not always matter as the perceptions of the targeted state will guide its future actions and policy line towards Russia.

The conclusion to be drawn from looking at the aggregated pattern of Russia’s usage of energy as a political weapon is that there has been a decreased actual usage of supply interruptions since the time of Yeltsin’s. There is, however, an increased capability to conduct interruptions in the future as a consequence of infrastructure take-over. The tendency is also that politics and security are always higher valued than economics even if they are linked.

Results from Usage of the Energy Weapon

The case against usage of the energy weapon is that it inflicts losses for Russia. The losses from using energy as a weapon are mainly losses of exports revenues and generated bad-will from the international community. Yet, Russia is financially strong and the argument is only valid concerning long-duration interruptions. Besides Russia never pays any attention to criticism from the international community. In addition, there are no visible or sustained results from supply interruptions in terms of political concessions. But this has not stopped Russia from renewed attempts. Thus there are no real factors of inertia and the threshold for doing this is very low within the CIS.

The Russian gains from using energy as a political weapon have been an increased actual capability by infrastructure take-over and an entrenched market position within the CIS. Thus there is an increasing capability to affect in the long run as capability and credibility for its energy deterrents have increased. Russia's perception is still that it is possible to affect a state also in the short-run perspective. The conclusion is that Russia believes that it is not a bad idea to use energy as a political weapon unless it is done against the West for a sustained period.

Risk of Supply Interruptions

The risk for short duration supply interruptions in the future is small for Western Europe, but if there is a negative relation between Russia and Europe we may experience annoying behaviour such as "contractual problems" or "technical difficulties". There is some risk for Eastern Europe (Poland) for supply interruption as Russia has an attitude where it is seen as collateral damage if a cut-off is staged against Belarus. Finally, it is rather high risk for the Baltic countries, Ukraine, Belarus, Moldova and Georgia to be targeted also in the future.

There is basically no risk for a long duration supply interruption in the short run perspective for any importer of Russian energy. In the long run perspective, the risk depends on Russia's general development and its relations with importers in combination with development of infrastructure for alternative export routes. This is currently not an issue.

The conclusion is that the risks for energy supply interruptions must be considered, especially as they create new problems and consequences also beyond security of supply.

Consequences

As said, the result and consequences should be seen in the light of Russia's development which in many ways is problematic and worrying. Russia's policy and development is still highly unpredictable and Russia is moving in wrong direction regarding democracy, economy and military etc. There are no check and balances and the existing political and economic stability is a mirage. More important, there are fundamental differences in view on interactions between Russia and the West and Russia is reluctant to get involved and enmeshed in the world economy. Interdependence, which has been key in Europe, is seen as a threat.

The risks and results based on Russia's history, intentions and capabilities are that efforts to affect the foreign policy of importing states. Importing firms and end users may be affected. It will slow integration and possible other trade frictions will emerge as a consequence.

The cure is not autarchy for importers or isolation of Russia. Instead, the way out is to affect Russia's development by promoting market economy and democracy. Trade can force Russia into the world economy. But a coordinated EU policy as well as using the WTO framework can be used to put pressure on Russia and ensure that Russia goes in the right direction and play by the same rules as we do.

Conclusions

The overall conclusion is that Russia by and large is a reliable energy supplier, at least to vital customers in the West. But frictions and problems are numerous and relates to issues also beyond security of supply. Basically:

Russia is moving in the wrong direction.

Kremlin is prepared to economic sacrifices for political and security reasons.

Kremlin is in full control over security and strategic issues.

Existing stability is yet a mirage.

Unpredictability and lack of rule of law still is the norm.

Way out – getting Russia on the track.

Per Brilioth

Introduction

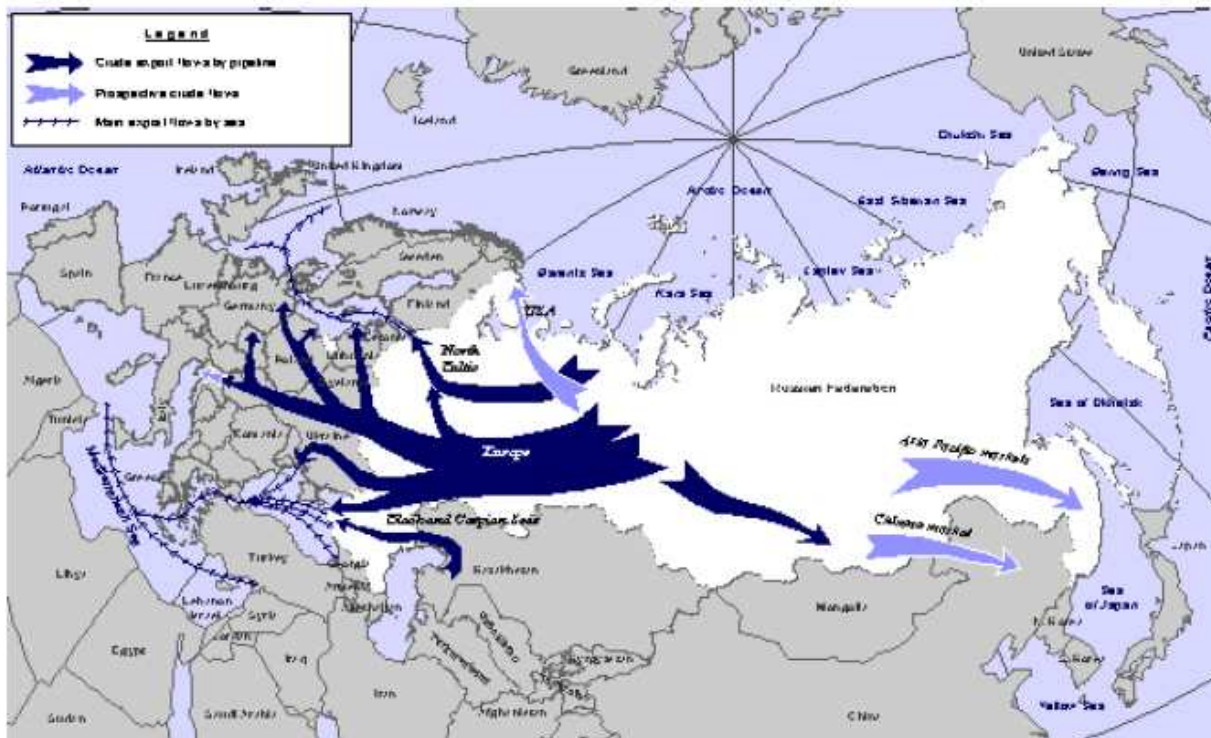
Mr. Per Brilioth is currently the CEO of the investment company Vostok Nafta. Vostok Nafta has a portfolio mainly containing the close to 1.4 % ownership of Gazprom.

Russia's energy export to EU

Oil and oil products are a traditional foundation of the Russian economy. It was a legacy from the Comecon[1] policies that created the Druzhba pipeline from the former Soviet Union to its socialist friends in the Eastern Europe. The Russian oil market is highly competitive while the gas market still has more of a “take or pay” structure. Liberalisation and emerging spot markets will change the old structure and force gas into more competitiveness. Gas is the future for Russia because of its gigantic resources. Russia has got around 5 % of world oil resources and about 25 % of world gas resources.

- But what will come after gas, a dawning era for export of electricity? Per Brilioth asked.

The Russian crude oil export is currently mainly to the central European countries via pipelines. The main export flows over sea have is distributed from ports in Ukraine, Russia and Georgia in the Black Sea directed to the Mediterranean and from Russian ports in the Baltic Sea directed to Western Europe and the US.



Picture 1. Russian crude and refined product: old and new. Source: Vostok Nafta.

The prospective crude flows go mainly to Murmansk in the Barents Sea and to the Asian Pacific and Chinese markets.

Out of the European primary energy consumption of oil, of about 700 mtoe, 29.5 % is from Russia. Europe's gas consumption of little more than 400 mtoe has 31.1 % its origin in Russia. The EU 25 consumption of gas is expected to grow faster than the consumption of oil mainly due to the deregulation of coal and electricity and the Kyoto protocol. For Russia this fact comes handy as they dominate the market, it has excellent track records of uninterrupted deliveries and therefore a potential for competition from Middle East as they lack delivery infrastructure.

The Russian oil production has recovered somewhat from the drop to about 6 mbpd in 1995 to 1999 to current production of about 9 mbpd. But it still has some left to the earlier highs of 11 mbpd in 1988. Gas, on the other hand, is on the verge of further growth. The Russian company Gazprom is moving into a period of heavy investments in strategic development projects in the Shtokmanov field north of Murmansk, the Yamal field in the Kara Sea and Eastern Siberia.

The European gas balance

The current European gas demand is about 500 Bcm annually. The supply consists of the indigenous European gas production of 282 Bcm, LNG of 40 Bcm, Algeria of 31 Bcm and Russia and CIS of 147 Bcm.

In 2015, the EU 25 is predicted to have a gas demand of 770 Bcm. The supply of the current sources is predicted to decrease to 470 Bcm which means a 300 Bcm supply gap by 2015. This is expected to be covered mainly by Russian gas and its new production potential.

Gazprom global competitive picture

Gazprom's major focus is on the European and the US gas market. Both those regions are not self sufficient. Europe is fairly close and with an extensive export infrastructure built. As the North Sea will plateau even on gas, Russia is in the driving seat for supply to Europe. To extend their energy export, huge investment will be needed in the export routes, new production in the Shtokmanov field, the Yamal field and the unexplored area of East Siberia. Gazprom's biggest competitions come from Algeria and the Middle East. In the case of the Middle East they lack the pipeline infrastructure, but they are looking at the emerging LNG-market.

In order to reach the US gas market without own infrastructure Gazprom delivered the first LNG cargo of 65 000 tonnes to Cove Point in Maryland on 2nd of September 2005. The shipment with LNG was gas swapped with BG.

Shtokmanov field

The Shtokmanov field contains approximately 2,5 tcm of gas and is an offshore gas field. The field is top priority for Gazprom in their attempt to increase energy export. The field is located in the Barents Sea, close to a non-freezing zone 160 km from shore. The initial investment in the project is 10 to 13 billion \$ which will generate about 22.5 bcmpa of gas and 15 mtnpa of LNG. The peak production is estimated to 70 bcmpa of gas. The project will extensively use seabed upstream and preprocessing technologies. The Norwegian projects in the Snöhvit and Ormen Lange field are models. Gazprom will, to be able to realise this project, have Western partners as for example Norwegian Hydro and Statoil or American ExxonMobil, Chevron and Japanese Mitsui and Sumitomo. Negotiations will take place in the end of 2005 to define partners.

North European Gas Pipeline

Another top priority for Gazprom energy expansion is the North European Pipeline. The pipeline is intended to go from Central Russia towards St Petersburg via Viborg and Primorsk into the Baltic Sea and down to Germany. The pipeline is part of the EU-TEN list since 2000. The project has recently been upgraded to more than 55 bcmpa. The main route is to enter Germany but a second phase could also reach the UK. Companies on the short list are the companies BASF and E.ON Ruhrgas from Germany. A main advantage with the project is to reach the EU directly without transit countries. The project is estimated to cost in excess of 5.7 billion \$.

Gazprom ownership and value drivers

The Russian State Property Fund holds a total share of Gazprom of about 40 % which is parted into 39.3 % in direct ownership and 10.7 % ownership via the 100 % owned company Rosneftegaz. Rosneftegaz also owns 100 % of Rosneft Yugansk. Other shareholders in Gazprom are E.ON Ruhrgas which holds about 7 % and Vostok Nafta close to 1.4 %.

The Gazprom value drivers are primarily the deregulation of Russian gas and gas price development. At the moment low regulated prices affect the financial result.

Gazprom is currently valued to about 120 billion \$, a valuation mainly driven by exports with additions domestic and pipelines. Mr Brilioth believes that with a proper value of the transport tariff and by revaluing the domestic business the total valuation of Gazprom reaches about 200 billions \$.

Gazprom future strategy

The second stage to reform Gazprom will be the strategic goal to be a global energy company. For this to happen Gazprom must integrate vertically, have a product differentiation, strengthen its position in Europe, enter new markets as the US, the UK and South East Asia. Gazprom must also increase its export and production possibilities by investments in pipelines and LNG from old and new areas as Shtokmanov and Yamal which will be the main production areas after 2010. Gazprom needs also to improve its economic efficiency. Gazprom will also be looking for strategic partners who have the technological know-how and presence in local markets rather than financial strength.

Giordano Rigon

Introduction

Dr Giordano Rigon from the European Commission works in the Unit of Energy Policy and Security of Supply of the Directorate-General for Energy and Transport. He has been working in the field of external relations for energy matters since February 1999 and in the Energy Dialogue with Russia since February 2004.

Energy Policy and Security of Supply

Energy is a pillar of our economic system. However, EU imports 50% of its energy needs, which correspond to a bill of some 240 milliards euros per year. According to the present trends EU will import 70% of its energy needs in 2030. The security of supply is a very important factor to be considered, but there is also a strong link between energy and climate change, as the energy sector produces 94 % of CO₂ in the EU and 78 % of all green house gas emissions.

Despite the present oil shock, future energy needs of the EU 25 are expected to increase in all sectors – households, industry, tertiary and transports. The demand for fuels will therefore remains strong, with a strong increase for natural gas, while the renewable sources are expected to have a moderate increase, and nuclear to decline. On the consumption pattern per capita to 2030 the demand for electricity is expected rising the fastest, and this will lead

to an increasing demand on – imported - gas. Together with transport, the power generation will give a strong contribution to CO2 emissions.

Is it possible to control the energy demand and to change the present consumption pattern? How to manage the unavoidable dependence of EU by imported energy?

EU actions for the security of supply

The EU-Commissioner of energy, Mr Piebalgs, has identified 6 priorities aimed to address these issues:

1. Promoting energy efficiency
2. Supporting renewable energy sources
3. Proper functioning of the internal market for electricity and gas
4. Better linkage between energy policies and environmental & research policies.
5. Strengthening nuclear safety and security
6. Developing external energy policy relations

Energy efficiency is the 1st priority of Commissioner Piebalgs. The cheapest, most competitive, most secure form of energy for the European Union is in fact energy saved by better regulation, by the introduction of new technology and by providing citizens with better information. Energy saving policies, properly implemented will not only significantly contribute to meeting the EU's Kyoto targets, but also enhance its security of supply and its competitive-ness.

EU has adopted new legislation to promote greater efficiency in energy use in buildings. And a new Directive on cogeneration will encourage the wider use of energy efficient combined heat and power in the single market. In addition, the Commission has proposed a new energy efficiency target for the European Union. Member States should aim at saving at least 1% more energy each year than the average over the last five years.

This year, the Commission is leading a major Initiative. The first step was the adoption of the Green Paper on Energy efficiency on 22nd of June 2005. Currently, it is estimated that over one fifth of Europe's energy usage could be saved with simple, quick and inexpensive measures. The estimated energy saving, on the basis of available technologies is 17 % in industry, 14 % in transport and 22 % in domestic and tertiary (data for EU 15).

[The energy wasted by electronic devices in stand-by mode is a good example: Consumers often believe their appliance is off, when in fact it is on stand by and still consuming energy. These losses seem insignificant, but if you multiply the number of households in the European Union by an average of 40 Watt of permanent stand by waste per household, the result is 5 to 6 GW, that it is the equivalent of 5 or 6 nuclear reactors operating in the EU 25 only for stand by energy waste. But in fact it is now possible to reduce this consumption by the design of new equipments. The same functions could be performed with a standby power of one watt or less.]

Renewable energy in the EU

For several years, renewable energies have been given special treatment in the interests of the environment and diversification. A few years ago, Member States have agreed and committed themselves on the following targets:

- To double to 12% the share of renewable in total primary energy consumption in EU 15 (11.1% in EU 25).
- To increase the share of renewable in electricity generation from 14% (2000) to 22% by 2010.
- In transport the hope is to increase the use of bio fuels to almost from less than 1 % to 5.75 %

In real terms, despite the rising demand, their share in primary energy production is more or less stagnant at around 6%. Our recent report suggests that the share in electricity generation will not be more than 19% unless more action is taken to promote the renewable.

The Commission will keep pressure on the member states to achieve their commitments, and strengthen existing programmes as Intelligent Energy and RTD Framework Programme.

Proper functioning of the internal market for gas and electricity

We already have in Europe, the largest and most integrated regional energy market in the world. Since 1st July 2004 all business customers throughout the European Union are free to choose their electricity and gas supplier. From 1st July 2007 all consumers, including also households, will have a free choice of supplier.

To ensure the proper functioning of the internal market for gas and electricity for the benefit of all citizens, the EU will ensure proper implementation of legislation, monitor investment and price developments and consider ways to assure best functioning of markets.

Linkage between energy and environmental policies

The basic objective is to promote an energy policy which contributes at the same time to Lisbon and Kyoto objectives with the development and introduction of new technologies. The means are: boosting investments in new technologies, strengthening EU research capacities, and reinforcing EU leadership in climate and energy technologies.

This approach has been confirmed by the Commission in the priorities of the 7th research framework programme for the period 2007 to 2013: CO₂ capture and storage technologies for zero emission power generation clean coal technologies, Hydrogen and fuel cells, Renewable energy, Energy efficiency and savings.

Strengthening nuclear safety and security

The energy-mix is a choice of the Member States. However, the Community (EURATOM) has competences in matter of nuclear safety and security. Safety and security remain priorities for the Commission. Moreover, Mr. Piebalgs underlined the importance of pursuing research in the fusion field, and specifically the ITER project.

Strengthening international energy policy relations

The EU is a major economic trading block of some 450 million people, housing the most integrated regional energy market of the world. We consume almost one fifth of current global energy supplies. Imports of gas could represent almost 80% of our needs in 2030, up from one half today. However, the EU has, to date, failed to fully exert its influence in international energy markets.

To should also be developed by further strengthening international energy policy relations by building up dialogue with Russia, relations with neighbours, develop dialogue with OPEC and having a new focus to relations with other consumers and developing countries.

More specifically, Russia has been, and continues to be, a significant supplier of energy products to the European Union. Russia provides over 1/4 of the EU's hydrocarbon needs: 60% of Russia's oil exports go to the EU, representing 25% of total EU oil consumption. 50% of Russia's natural gas exports arrive in the EU, representing 26% of total EU natural gas consumption.

EU-Russia Energy Dialogue

The Energy Dialogue launched at the summit between the European Union and the Russian Federation on 30th October 2000 arose from the notion that the European continent constitutes a broad geopolitical area linked culturally, historically and economically and that

the complementarities in terms of energy between the eastern and western parts of the continent should be developed in a sustainable way in the future.

Energy security in Europe is the objective and the result of EU-Russia cooperation. In this optic, the Energy Dialogue allowed frank and constructive discussions involving representatives of the government of the Russian Federation, the European Commission, the EU Member States and the Russian and EU industry, helping to solve a number of important misunderstandings and problems between the EU and the Russian Federation. The achievements include: the acceptance of long term gas supply contracts, underlining their importance and resolving the question of destination clauses which existed in some of them; addressing certain energy trade issues in the context of the negotiations for Russia's future accession to the World Trade Organisation; and confirmation of the supply contracts for nuclear materials concluded by Russia prior to EU enlargement. The creation in Moscow of the EURussia Energy Technology Centre and the development of energy efficiency pilot projects, are further concrete results of this cooperation.

A key objective of the Road Map for the Common Economic Space, adopted at the Russia-EU Summit of 10 May 2005, is the intensification of cooperation in the energy area, with particular emphasis on addressing issues related to the sustainability and continued reliability of the production, distribution, transportation and efficient use of energy, and in those aspects specifically related to the implementation of the Kyoto Protocol. The EU-Russia Dialogue is one of the important instruments to achieve these objectives.

The launch of four bi-lateral Thematic Groups had brought additional impetus from the industry to the dialogue. Dealing respectively with investments, infrastructures, trade and energy efficiency, these groups have been established following the suggestion of the Energy Steering Group of the EU-Russia Industrialists Round Table. They first met in July and subsequently in September, bringing together more than 100 European and Russian experts from the private sector and from the administrations, allowing an unprecedented exchange of views by drawing together the experience and priorities of both parties, and giving more focus to the concerns of the Russian and EU energy industries.

The first Permanent Partnership Council² dedicated to energy issues, which took place in London on 3rd October 2005, was a highly visible sign of the increasing political importance of our energy relations. The EU would remain a reliable and growing market for Russian energy, and Russia would remain the EU's main supplier of oil, gas and uranium. For the EU it means better security of supply and investment opportunities; for Russia it means better security of demand, expanded access to markets, capital and –if needed- expertise. The Energy Dialogue is therefore a winwin opportunity.

This document presents the personal opinion of this author and does not constitute any formal commitment on behalf of the Commission.

² The Permanent Partnership Council is a standard forum for discussing EU-Russia affairs. It consists of Ministers from Russia, the EU Presidency, the incoming EU Presidency, and an European Commissioner

Jochen Moritz

Introduction

Mr Jochen Moritz is Head of Section Gas Supply East at E.ON Ruhrgas based in Germany. He is experienced from various activities in the natural gas industry within the E.ON Ruhrgas organisation.

Natural Gas in the European Union

Balancing the Dynamics of Demand Uncertainty and Import Dependency

The Status quo and the future of the European Gas Markets are a question of development of the market structure; will it be a uniform European gas market or 30 divided individual markets?, will the future European gas demand grow and how?, will supply develop towards more LNG or piped gas and will infrastructure development be received as new business or expanded regulation.

The primary energy consumption of EU 30 is expected to increase in natural gas from today's share of 24 % to 27 % in 2010 and 30 % in 2020. Oil products are expected to be steady at about 30 % while coal and nuclear will decrease in the same period.

Supplies from West European sources are approximately 250 mtoe while the imports into Western Europe account for 120 mtoe in 2003. The imports have its origin from Russia (17.5 %), Algeria (12 %), Libya (0.2 %) and others (3.8 %). The non European import share varies a lot between different European countries. Portugal, Finland, Spain, France, Greece and Austria import more than half of its supplies from outside Western Europe, while Germany, Belgium, Holland, Denmark, UK, Ireland, Sweden and Switzerland all have an import share of non West European gas of less than 50 %. Some countries (UK, Denmark, Sweden and Ireland) are supplied by 100 % West European sources. The dependence of non European gas is therefore very different in the individual EU countries.

In the European Union the import dependency of non European gas sources is expected to rise from today's 49 % to 60 % in 2010 and 81 % in 2030. The overall EU 30 consumptions are also expected to rise from today's 515 billion m³ to about 675 to 730 billion m³ in 2020. The natural gas consumption trend by sector in Europe 30 sees today mainly a rise in the power station sector, from 27 % in 2004 to 35 % in 2020, a decreased share in residential and commercial and a steady share in industrial and others. Per country the increase in natural gas demand until 2010 is mainly expected to be in Greece (149 %), Spain (49 %), Portugal (45 %), France (23%), Italy (14 %), Germany (12 %), UK (12 %), and Belgium (9 %). This means that 67 % of the expected growth of natural gas consumption until 2010 in the European Union will come only 5 countries (i.e. Germany, Italy, France, UK and Spain).

The expected necessary developments of gas supplies to the EU are an increase in absolute terms from today's 465 billion m³ to 525 to 560 billion m³ in 2010 and 590 to 640 billion m³ in 2020. The indigenous European production as well as imports from Russia, and Algeria is expected to decrease by relative share while imports from Nigeria, Qatar and others are likely to increase. The resulting supply gap of 27 % in 2020 is not fully closed by today though some major infrastructure projects for importing further gas volumes into the EU are already "on the shelf" (e. g. North European Gas pipeline from Russia, LNG terminals and pipeline from Norway for the UK).

In the main supply regions but also in other regions with export potential for the West European markets ample reserves are in place, such as the Norwegian Barents Sea (181 billion m³), the Norwegian Sea (994 billion m³), Norwegian North Sea (1 991 billion m³), UK (630 billion m³), Denmark (84 billion m³), Holland (1 567 billion m³), Germany (326 billion m³) and Italy (227 billion m³). The non European potential are Algeria (4 522 billion m³), Libya (1 314 billion m³), Qatar (14 400 billion m³), Iran (23 002 billion m³), Turkmenistan (2 010 billion m³), Uzbekistan (1 875 billion m³), Kazakhstan (1 814 billion m³), Russia's

European part (4 100 billion m³), Russian Barents Sea (3 500 billion m³) and West Siberia (36 100 billion m³).

The future of European Gas Markets

The EU gas industries have different starting points for future developments. This needs to be reflected in different regulatory frameworks, but convergence of structures is in progress from the EU's perspective.

The future demand growth will come mainly from gas-to-power, but competitiveness with coal is crucial for this market segment.

Gas supplies will increasingly rely on LNG whereas the major companies have already secured their influence through shareholdings in LNG projects.

New infrastructure will only be built if there is a politically backed long-term stable framework for investments and if market prices are attractive to finance the necessary major import infrastructure projects.

Joint efforts by midstream companies, producers and politics will be necessary to balance the dynamics of demand uncertainty and import dependency.

Gas and oil price linkage

Gas prices follow oil prices even without contractual oil price linkage. UK spot prices and European oil-indexed prices are not decoupled, as UK prices also reflect oil price developments - even without contractual oil price linkage. Spot prices, UK NBP and US Henry Hub, are considerably more volatile than oil-indexed LTC-prices. Recent price spikes in the UK due to decreasing indigenous production and lack of storage were partially levelled off by continental gas export to UK.

Conclusion

Europe has a long history of gas supplies from Russia. The experience has shown that Russia is a reliable supplier. For example, E.ON Ruhrgas has made good experiences with long-term gas supply contracts over more than 35 years. Russia and the EU are further developing the necessary supply basis for the natural gas market. One good example is the cooperation between E.ON and the Russian Gazprom in the North European Gas Pipeline

The EU has rising import dependence for gas, but there are regional distinctions between the EU countries.

There are ample gas resources available from existing and new supply regions for the European markets. Some of the future gas supplies are expected to be imported via major new infrastructure projects partially involving Russian resources.

To have attractive markets being able to mobilize new resources to the West European markets we need a competitive environment assessing an appropriate value for the natural gas versus competitive energies. In this context the value of gas will always be linked to the value of oil.

Jonathan Stern

Introduction

Professor Jonathan Stern is an expert on natural gas development, trade, liberalisation, regulation and security worldwide. He is: Director of Gas Research at the Oxford Institute for Energy Studies, honorary professor at the Centre for Petroleum and Mineral Law and Policy at the University of Dundee, and holds fellowships at Imperial College in London and the Royal Institute of International Affairs where he was previously Head of the Energy and Environmental Programme.

European Gas Supply and Security Issues

Professor Jonathan Stern presented a natural gas security framework with four components; reserves and production, import dependence, how to meet demand and contingency planning. He proposed that gas security should be defined in relation to whether firm customers, especially residential customers, have an assurance of a continuous supply of gas. Definitions of gas security in relation to volumes of reserves or supply availability over 20-30 year time scales are much less relevant. It is worth recalling that most voices in Europe around 1980 believed that the Continent's gas supplies would be exhausted within 25 years. But during that period huge new reserves have been found and the reserves/production ratios in some European and supplying countries have increased, despite huge increases in production.

Substantial new infrastructure is currently being built for new supply into Europe. 3 new pipelines and 3 new LNG terminals are being constructed just for the UK with a capacity 100 Bcm of extra supply for a market of just 100 Bcm.

In North Africa the Green stream pipeline from Libya came on stream last year. Two pipelines from Algeria - Medgas to Spain and Galsi to Italy- are at an advanced stage of planning. North African gas has only a short distance to travel to Europe, which means that especially southern Europe has an abundant supply and low cost source of gas for many years.

The Shtokmanov field was originally designed to reach Europe via pipeline and the Baltic Sea. But lack of European demand, combined with high transportation costs, has forced the Russians to develop the field as an LNG project for export to the US. It is possible that in a later phase of this project will include a pipeline connection to Europe.

With Russia's new export link - the North European pipeline through the Baltic Sea to Germany now committed to be built, a pipeline to Sweden would be an excellent and low cost means to additional access gas supplies even if demand is limited. Whether Central Asian gas will reach Europe via Russia or via Turkey will be dependent on the role of Gazprom as a transporter and purchaser. These exporters have vast resources which they would like to sell, but have to find acceptable and commercial means of transportation to solvent markets.

The Nabucco pipeline is a proposal to deliver gas to central Europe from Iran, Turkmenistan and Azerbaijan is also facing problems because of uncertain future demand. On the other hand, the two interconnectors between Turkey and Greece and Greece and Italy will probably be constructed as they add diversity and have financial support from the EU.

A dozen LNG terminals are currently under construction in Europe and many more are planned. LNG is beneficial for both security/diversity and commercial reasons - shipments can be sent to other markets if prices dictate – and this is why companies would like to have LNG in their portfolio. For the first time LNG from Middle East LNG can compete in European and US markets.

The IEA energy demand outlook predicts that the demand will increase by approximately 60 % up to 2030; 70 % of this increase will be in power generation. Research being carried out by the Oxford Institute's gas research programme suggests this outlook is overestimated, at least for the period up to 2015. Currently the only countries where large numbers of gas fired power stations are being constructed are Spain and Italy.

Currently there is a debate over whether supply is in shortage or surplus. Jonathan Stern believes there is a supply surplus. The reason for the high gas price is rather the lack of 3rd party access, the oil to gas linked price and the market control of huge multi-energy utilities and major gas suppliers. Utility companies will not build new power stations for which they need to purchase gas at oil-linked prices. Most Continental European utilities have very well functioning coal fired power plants with low costs and no problems with environmental regulation. Regarding the future of nuclear power in the next 15 years this is a matter of life extension for existing stations. In countries such as the UK, the situation is that *if* anybody wants to build a new nuclear power plant and assuming they get the permissions and the finance necessary, there is a 15-20 year lead time.

Oil linked gas prices

Today's high gas price does not represent the supply/demand gas price. If competition is introduced the likelihood is that prices will fall. In the US, in 1984 and 1999, and the UK, in 1992 and 1998, the gas and oil prices decoupled on a day to day basis, but over a period of years it could be seen that gas prices still had a relationship to oil price. Today there is a tight supply situation in the US and a closer link with oil product prices has been re-established. In Europe the link between oil and gas remains contractual. Even if there will be gas to gas competition in Europe – with a day to day decoupling from oil prices - the relationship to oil prices will remain.

Two European Gas scenarios

It is worth considering the future of gas supply and demand in Europe using two gas scenarios:

the first gas scenario is when competition breaks out, there are a surplus in supply, prices crash, gas fired power stations are built and more supply is needed by early 2010.

In the second scenario oligopolistic markets prevail; prices remain linked to oil, there is little gas fired power generation built over the next decade and little new supply needed prior to 2015.

Over the next decade there will be no major problems with supply, except that possibly too much infrastructure is being built. The percentage of Europe's gas which will be imported will increase, but that tells you very little about security of supply. A more interesting period about which to speculate is after 2015, when whole Dutch, UK and continental European supply will be declining and Norwegian supply may not be able to expand. If this causes high gas prices it may halt the expansion of power generation which could by then, be expanding rapidly. "Running out of gas" (whatever that means) will not be a problem for Europe. If supplies are short, prices will determine that no new gas fired power plants will be built, and that energy efficiency will increase substantially, something we should be doing anyway. If Europe's relations with exporters deteriorate, and if we haven't managed to develop low carbon supply alternative, there will be commercial problems when prices increase, and environmental problems arising from lack of carbon reduction. We have to face these problems right now and not expect great advances in technology about which we know very little about at present to "solve the problem". On carbon reduction, we have to make hard choices and probably spend a lot of money.

Import dependence

Import dependence of Europe on Russia can be viewed in a number of different ways. Theories of “unreliable and nasty foreigners” suggest European fears that Russia:

- will be unable to maintain installations properly
- will be likely to cut supplies to exert commercial and political pressure on European countries.

This fear of Russia in particular can only be answered with reference to past history which shows a very reliable track record, and that gas exports to Europe have been more a question of economy than politics. People underestimate the importance of money and the fact that Russia is dependent of their export incomes. This year the Russian state will earn 25 billion US\$ in revenue for gas export, corresponding to around 17 % of total convertible currency export revenues. Oil exports will be more than twice that figure.

The only clear example of Russia attempting to use natural gas as a weapon to achieve political goals was when the Soviet Union was breaking up and gas to the Baltic countries was cut off in order to try and make them stay in the Union; an attempt which failed. As a more general proposition, there is no empirical evidence in the gas industry worldwide that imported gas is less secure than domestic supply.

As far as relationships with CIS countries are concerned, Russia is highly dependent on them for transit of gas to Europe, while at the same time these countries are dependent on Russia for gas supplies. Lack of reliable transit, and unsatisfactory commercial relationships - Ukraine pays 50 US\$ per 1000 m³ for Russian gas compared with German prices in excess of 160 US\$ per 1000 m³ – are the main reasons why Russian wants to reduce dependence on transit countries; hence the North European Pipeline. The Russians have little political culture of successful interdependence relationships and that's why the EU - Russia dialogue is very important, it is an institutional manifestation of energy interdependence.

Emergency events

In a monopoly market the costs of emergency planning were included in the price, but in the deregulated market there are a multiplicity of players, increased emphasis on short term cost reduction and “just in time” supply planning. An example of this was seen last winter in the UK where there was a very tight supply situation. New UK import projects are arriving 1-2 years late in comparison to when they are needed.

A serious situation occurred in February/March last year because of very cold weather in southern Europe leading to high demand. Spain had technical problems with supply from Algeria and storage levels in France were low. Gas de France and Gas Natural had sent LNG carriers to US to profit from high prices because the winter was normally over at that time. This resulted in a very severe situation where spot prices soared, interruptible customers were curtailed, and firm customers were nearly cut off.

Most security incidents result from combinations of unusual events. Individually it is possible to have contingency plans for these events, it is the *combination* of such events which is impossible both to predict and prepare for.

Conclusion

If security is defined as the risk of firm customers losing gas for a significant period of time, then most security discussions overemphasise the risk of import dependence and political and commercial leverage, and neglect the risk of severe weather, natural disaster and technical failure.

NOG seminarium 5 december 2005

Kristina Haraldsson
11 december 2005

Förord

NOG- seminariet den 7 december 2005 fokuserade på olika aspekter kring oljepriset och dess effekter på samhället. Seminariet var uppdelat i två delar; dels oljeprisets olika drivkrafter och dess påverkan på svensk ekonomi, dels hur oljeprisnivån påverkar den svenska ekonomin. I mer detalj behandlades oljetillgång och – efterfrågans effekt på oljepriset, faktorer som påverkat oljepriset historiskt och påverkar i dagsläget, orsaker till varför oljepriset har stigit så kraftigt de senaste åren, handel med olja, oljeprisets inverkan på hushålls ekonomin och på den nationella budgeten.

Talare var:

- Odd Hassel, director, Cambridge Energy Research Associates (CERA), Oslo
- Björn Dingsör, oljeanalytiker, Norwegian Energy och Morgan Stanley, London
- Chris Glaas, vice president, Morgan Stanley, London
- Eva Srejber, 1:a vice Riksbankschef, Stockholm.
- Jan Häggström, chefsekonom på Handelsbanken, Stockholm

Odd Hassel

Odd Hassel är direktör vid Oslo-kontoret för Cambridge Energy Research Associates (CERA).

Inledning

Odd Hassel höll en presentation om oljemarknaden och oljepriset och vad som sker inom marknaden. Han påpekade att marknaden sätter oljepris efter förväntningar och menade att uttalanden i media såsom "oljepriset kommer att vara högt de närmaste 10-20 åren" bidrar till en ökad efterfråga.

Odd Hassel visade på de generella orsakerna till ett högt oljepris:

- Geopolitisk hänsyn
- Instabila områden, till exempel Nigeria, påverkar alltid oljemarknaden.

- Stark global efterfråga på olja
- Raffinaderibegränsningar

Det råder en obalans mellan typen av raffinaderi och typen råolja.

- Liten marginal för extra kapacitet

Det finns endast en liten ledig kapacitet kvar att utnyttja.

Hur kom vi till ett högt oljepris?

Odd Hassel visade på flera aspekter som marknaden inte kunde förutse (och parera för) år 2002 och som enskilt eller tillsammans har bidragit till högt oljepris. Dessa aspekter är bl.a.:

- Den förlorade oljeproduktionen i Irak (marknaden har inte fått tillbaka Irakproduktionen än)
- En oväntad stark tillväxt i den globala ekonomin. I länder som USA, Kina, Indien, Brasilien och Ryssland ses den snabbaste tillväxten sedan 1976.
- En obalans mellan de produkter marknaden efterfrågar (lätta oljeprodukter) och de som kan produceras i raffinaderierna. Raffinaderiernas kapacitet och produktionsutrustning är inte anpassade till marknads behov.
- Striktare specifikationer på bensin och diesel
- Orkaner som Katrina och Rita.

Trender

Gällande den närmaste framtiden pekade Odd Hassel på att det är nödvändigt att uppmärksamma 6 "drivkrafter" på den globala oljemarknaden. Den ekonomiska tillväxten utgör en dominerande drivkraft. Länder som Kina, Indien, Ryssland, Saudiarabien, och Irak samt OPEC bör också ses som drivkrafter. Han poängterade dock att dessa drivkrafter betydelse ska ses med förbehåll till miljö- och uthållighetsutvecklingen.

Odd Hassel visade på regionsvisa ändringar i oljefterfrågan. Ett exempel är Kinas överraskande efterfrågan på olja år 2004 med 930 000 fler fat/dag än för 2003. För samma år var det bara USA som matchade den ändringen med 800 000 fler fat/dag än 2003. I de närmaste 10 åren (2005- 2015) ser CERA att regioner som icke- OECD-länder i sydöstra Asien, Kina, Latinamerika och Mellanöstern kommer att stå för 70 % av efterfrågan. Under samma tidsperiod kommer lättare till mellantunga oljeprodukter att öka i andel, och Kina och icke-OECD-länder i sydöstra Asien toppar med drygt 4 miljoner fat/dag respektive drygt 3 miljoner fat/dag.

Raffinaderikapacitet (downstream)

En utmaning som Odd Hassel ser är att utöka tillräcklig raffinaderikapacitet. Idag ligger raffinaderikapaciteten på cirka 85 miljoner fat/dag medan världsefterfrågan ligger på drygt 80 miljoner fat/dag. Världen blir med andra ord alltmer beroende av marginalraffinaderier för att klara efterfrågan.

Det är olika situation för raffinaderier beroende på vilken region som avses. I västra Europa är kapaciteten tillräcklig men inte anpassad till efterfrågan av olika oljeprodukter och är dessutom beroende av USA:s produktion. USA:s utbyggnad av raffinaderikapacitet återupptas 2006. I sydöstra Asien, huvudsakligen Kina, behövs en markant ökning av kapaciteten. I Mellanöstern ses en utbyggnad av raffinaderiers kapacitet som en möjlighet att få ut mellantunga/ tunga oljeprodukter.

Tillgång (upstream)

Odd Hassel presenterade olika regioners ändring i så kallad "liquid capacity" fram till år 2015. Medan kapaciteten i västra Europa minskar till 4 miljoner fat/dag och i USA till 6,7 miljoner fat/dag, ökar kapaciteten i regioner som:

- Latinamerika till 12,6 miljoner fat/dag,
- Västafrika till 9,2 miljoner fat/dag,
- Ryssland till 11,9 miljoner fat/dag och
- Mellanöstern till 36,8 miljoner fat/dag.

Den totala kapacitetsökningen ligger jämfört med å 2004 uppskattningsvis på 17,5 miljoner fat/dag år 2010 och på 22,8 miljoner fat/dag år 2015.

Odd Hassel presenterade slutligen en uppskattning av oljeproduktionen och efterfrågan för framtiden och menade att en "peak" i oljetillgångarna inte vara nära förestående.

Sammanfattning

- En ökande koncentration av oljeproduktionskapacitet tenderar att uppmuntra ett "klimat" av högt oljepris (jämfört med det jämförelsevis låga oljepriset av 21 dollar under åren 1986-2003).
- Högre oljepriser och oljeprisförväntningar kommer att ha inverkan på både tillgång och efterfråga i framtiden.
- Ängslan för begränsade oljetillgångar skapar en potential för ansträngningar att begränsa ökningen i efterfrågan av olja. Men effekterna blir evolutionära, inte revolutionära, anser CERA.
- Raffinaderikapaciteten kommer att öka de närmaste åren, men en signifikant ändring från det nuvarande begränsade läget blir inte aktuellt förrän efter 2007.

Björn Dingsör

Björn Dingsör är oljeanalytiker på MorganStanley, London.

Inledning

Björn Dingsör presenterade olika aspekter kring oljemarknaden, bl.a. globalisering och raffinaderier.

Globalisering- orsaken till "oljekrisen"

Björn Dingsör presenterade effekter av globalisering.

- Globaliseringen fick en ny dimension i december 2001 då Kina blev medlem i WTO (World Trade Organisation, Världshandelsorganisationen).
 - Kina och andra asiatiska länder liberaliserade sina ekonomier vilket ledde till en stark regional ekonomisk tillväxt. Asien (främst Kina) blev världens centrum för produktion av slutprodukter.
 - Asiatiska länder som inte är medlemmar i OECD (Organisation for Economic Co-operation and Development), och återigen främst Kina, uppvisar en stor efterfråga på energi.
 - Området upplever en byggnadsboom och där metall- och cementindustrierna är mycket energiintensiva. Tillverkningsindustrin expanderar kraftigt men har en låg energieffektivitet. En välfärdseffekt är att det är relativt större efterfråga på slutprodukter än på tjänster
- Oljeefterfrågan ökar kraftigt.
 - Transporter av slutprodukter från Asien (Kina) till den amerikanska marknaden har ökat. Även bilförsäljningen i Kina ökar kraftigt med en 50% årlig ökning de senaste 3 åren.
- Dessutom råder det i Kina kraftproduktionsbrist och inom den petrokemiska industrin satsas det på LPG och nafta.

Björn Dingsör menade att globalisering har lett till en skarp ökning i olja/BNPElasticitet (% ökning i oljeefterfrågan/% ökning i real-BNP) fram till år 2004. En marginell ekonomisk tillväxt som visserligen var mer oljeintensiv men som kompensades av en obegränsad tillgång på billig såväl utbildad som outbildad arbetskraft. Dessutom kan det konstateras att olja som transportdrivmedel har blivit "livsnerven" i en alltmer global ekonomi.

Den minskande trenden i oljeintensitet avtog då den ekonomiska tillväxten i Asien satte fart år 2002, dock visade år 2005 en stark nedåtgående trend i oljeintensitet. Men en fallande oljeintensitet innebär inte längre någon buffert för stigande oljepriser. Dessutom har amerikanska konsumenter inte samma sparande-buffert som vid tidigare oljekriser.

Oljeindustrin blev överrumplad

Efter år av underinvestering och kostnadsreduktioner var oljeindustrin inte förberedd inför den starka tillväxten av oljeefterfrågan som orsakades av globaliseringen av världsekonomin. Det ledde till att oljeindustrin, både upstream- och downstreamdelarna, pressades till dess yttersta gränser.

Björn Dingsör menade att oljetillförseln ligger vid kapacitetsgränsen där länder som inte är medlemmar i OPEC (Organisation of the Petroleum Exporting Countries) har visat en otillräcklig produktion och där OPEC-länder däremot ligger vid rekordproduktion och nära dess kapacitetsgräns. OPEC10-ländernas marginalkapacitet låg på cirka 1,4 miljoner fat per dag eller kring 1,6% av världsefterfrågan. Vidare finns det inte en tillräcklig lagringskapacitet vilket medför att lagringsbufferten är borta. Även raffinaderiindustrin är nära kapacitetsgränsen och har ingen marginalkapacitet för huvudprodukter.

Björn Dingsör menade att för att ändra på bristen på oljebuffert måste produktionen accelerera eller efterfrågeökningen minska. En ökning av oljeproduktionen har mycket lång ledtid vilket leder till fokusering på nästa alternativ; minskning av efterfrågeökning.

Den framtida ”nya paradigmen”

Det största problemet med den framtida reserversättningen menade Björn Dingsör är tillgänglighet.

- Alla redan tillgängliga icke-OPEC-länders oljeregioner har prövats och visar på snabbt minskande kvoter. Det mesta som återstår i icke-OPEC-länder är placerade i instabila områden som Västafrika, Kaspiska havet och Ryssland.
- Kostnaden för produktionen har stigit kraftigt, p.g.a. faktorer som kostnader för verksamhet i mer otillgängliga områden, högre skatter och osäkerheter.
- Utforskningsaktiviteter är fortfarande låga. Nuvarande årliga volymer av nya oljefält uppgår till mindre än hälften av den globalt producerade volymen. Det senaste stora oljefyndet var Kashagan i Kazakstan år 2000 med 7-9 miljarder fat och möjligen upp till 38 miljarder fat totalt. Året 2004 visade på lägsta utforskningsaktiviteter sedan andra världskriget .

Björn Dingsör menade att det finns en illusion om energiförsörjningssäkerhet speciellt med tanke på hur dagens försörjning av olja går till. Med dagens siffror på global oljekonsumtion på 84 miljoner fat per dag, eller 30 miljarder fat årligen, och en framtida prognos till 2030 på 137 miljoner fat per dag (50 miljarder fat årligen) är den en diger uppgift för oljeindustrin att uppfylla. Regionen kring Kaspiska havet, med 17- 44 miljarder fat och därmed i klass med Qatar och USA, förväntas vara mycket viktig för framtida tillförsel. Den ryska oljeproduktionen är på väg att planas ut om tidigare trend följs. Västafrikas produktion har visserligen ökat men dess reserver har visat sig låga, 10,3 miljarder fat. Merparten av dessa reserver ligger i två länder; Angola och Gabon. För framtida produktion behöver nya fält upptäckas. Enligt de stora oljebolagen, till exempel ExxonMobil, förväntas icke-OPEC-länders oljeproduktion att ”peaka” de närmaste 10 åren. Björn Dingsör menade att merparten av framtida oljeförsörjningen kommer därför att ligga på OPEC-länder.

Raffinaderi

Raffinaderierna var inte förberedda på ökad efterfråga på transportdrivmedel, speciellt diesel, då dagens raffinaderiers produktion är fokuserad mot bensin. Detta tillsammans med nya specifikationer av drivmedel, orsakade av bl.a. strängare emissionskrav, har lett till minskad flexibilitet och begränsad kapacitet för raffinaderierna och till ökade regionala obalanser, speciellt för diesel och destillat.

Chris Glaas

Chris Glaas är vice president för Commodities London , MorganStanley.

Inledning

Chris Glaas höll ett föredrag om finansiella aktörer på Commodities- marknaden och hedgefonder, med vinkling mot olja.

Not: ”Commodities” är ”soft”, metaller och oljor. Commodities- marknaden är inte lika volatil som aktiemarknaden. Å andra sidan följer prisrörelser för Commodities inte aktiers rörelser vilket kan resultera i mer negativa effekter än för aktiemarknaden.

Finansiella aktörer

De finansiella aktörerna som handlar med Commodities är enligt Chris Glaas:

- CTA- d.v.s. Commodity Trading Advisors- aktiva på marknaden speciellt på ”futures”-marknaden. Många sådana fonder använder teknikorienterade ”black box”- system med automatiserade uppköp.
- Banker- investeringsbanker och kommersiella banker som t.ex. MorganStanley och Goldman Sachs.
- Hedgefonder- en del fonder baseras på makro (kort och lång) och handlar explicit med olja och naturgaspriser medan en del fonder fokuserar på energispecifik (relativa) värdehandel.
- Institutioner- t.ex. pensionsfonder, försäkringsbolag- investerar primärt i generella Commodities och är ofta ”passiva” investerare.

- Privata Equity-fonder- fördelar prisrisker och ökar gardering i investeringar genom exempelvis byten ("swaps") och optioner.

Passiv investering

Passiva investerare är ofta institutioner. Cirka 100 miljarder dollar investeras passivt och investeringarna sträcker sig 2 till 3 år. För passiva investeringar finns främst två olika index: GSCI (Goldman Sachs Commodity Index) och Dow Jones-AIG. Skillnaden dem emellan är bl.a. att man betalar en avgift via Dow Jones men inte via GSCI.

Ett motiv att använda dessa index kan vara att man kan delta "brett" på Commodities-marknaden. Man kan genom den breda approachen på marknaden hålla en diversifierad portfölj och utnyttja fördelar med strukturen hos Commoditiesmarknaden.

Det är relativt billigt att köpa många råvaror och man kan erhålla okorrelerade (i förhållande till marknaden) avkastning på investerat kapital. Samtidigt finns det en viss osäkerhet, bl.a. kan avkastningen ibland vara negativt korrelerad och det kostar att hålla en viss position.

De passiva investerarna har ökat investeringarna med 180% de senaste 3 åren till 70 miljarder dollar, varav cirka 40 miljarder dollar på olja och 7 miljarder dollar på naturgas.

Hedgefonder

En hedgefond är en fond med ett avkastningsmål som är absolut och därför oberoende av marknadsriktning. Det rör sig om längre tidsperspektiv och en mer aktiv investering än med institutionsinvesteringarna. Denna typ av fond har stor flexibilitet i förvaltningsinriktningen, bl.a.

- Commodity Trading Advisors (CTAs)- teknisk, mer matematisk, handel
- "Macro"
- "Equity"- aktiekapital byts mot olja
- "Relative Value"- inriktningar som används är
- tidsperspektiv, marginaler, lokalisering, "cross commodity" (d.v.s. byta råvaruklasser, som exempelvis kol mot naturgas) och "BTU spreads" som baseras på energivärden.

Hedge fonder ökar i betydelse

Hedgefonder är i regel oreglerade kapital-pooler som möjliggör investeringar över flera marknader på ett otvingat sätt. Hedgefonderna finns dessutom på alla marknaderna. Inom energimarknaden har åsikterna länge varit att långterminspriset för olja är för billigt och för liten tillgång samt att en kombination av asiatisk efterfråga och högre projekteringskostnader kommer att driva priserna högre. Hedgefonder är därför mer aktiva i energimarknader med längre tidsperspektiv. Marknaden har under de senaste 18 månaderna varit "bullish" (d.v.s. positiv uppåt trend). Fonderna kan dock, av deras karaktär, lätt bli "bearish" (d.v.s. få en negativ trend).

Vilka hedgefonder deltar i energimarknaden?

Antal typer och tillgångar för hedgefonder har ökat kraftigt de senaste tiden. Bland annat finns

- "Dedicated Commodity"- fonder som specialiserar sig mot relativa värden
- CTAs
- Emerging Market (EM)- fonder- med långt tidsperspektiv i områden som korreleras starkt till Commodities, till exempel Brasilien, Ryssland och Östeuropa.

Hur ser framtiden ut för marknaden?

Chris Glaas presenterade några av marknaden förväntningar:

- Commodities kommer att etableras som tillgångsklass
- Förskjutningar i tillgångsplaceringar, och finansiella flöden, kommer att ha stark inverkan på pris.
- Terminsstrukturen kommer att bli mer volatil.

- Investerare för många hedgefonder tror att oljepriset startar från 45 dollarlångterminsprisets marginalkostnader för en minskande tillgång kommer att ha ökade årliga kostnader.
- Förväntningar avspeglas i pris mycket snabbare än tidigare.

Det finns även potentiella risker för marknaden:

- Om avkastningen i den traditionella marknaden förbättras, kommer de finansiella flöden kring Commodities att avta?
- Många investerare är unga och har hittills inte upplevt några förluster. Det är därför osäkert hur de kommer att agera om de erfar en negativ avkastning.

Sammanfattning

- Totalt sett påverkar de finansiella flöden energipriserna kraftigt men de är inte de enda faktorerna som har lett till de nuvarande höga priserna.
- Den passiva sektorn tenderar att underhålla energipriset.
- Hedgefonder är långsiktigt neutrala på energipriset men reagerar positivt på volatilitet.
- Morgan Stanley menar att man är i början av en investeringscykel i Commodities- och förväntar sig att marknaden växer för att inkludera nya spelare.
- Fundamentala orsaker spelar fortfarande en stor roll men det är svårare att analysera marknaden.

Eva Srejber

Eva Srejber är förste vice Riksbankschef.

Inledning

Eva Srejber presenterade inflationsutvecklingen från 1970 fram till idag och mekanismer för oljeprisets inverkan på ekonomin.

Inflationsbekämpning

Riksbanken vill åstadkomma en god grund för den svenska ekonomin genom stabilisering av inflationen. Anledning till detta är att en varierande inflation lätt kan ge inkorrekta signaler, och därmed utgöra en felaktig grund för t.ex. investeringsbeslut. Återkommande kostnadskriser och devalveringar påverkar dessutom ekonomin negativt.

Enligt Riksbankens inflationsmål ska inflationen vara 2 procent, mätt som den årliga förändringen i konsumentprisindex (KPI). Runt målet finns också ett toleransintervall på plus/minus 1 procentenhet. Att hålla inflationen på precis 2 procent hela tiden är knappast möjligt och att hela tiden finjustera räntan i det syftet skulle riskera att förstärka svängningarna i ekonomin.

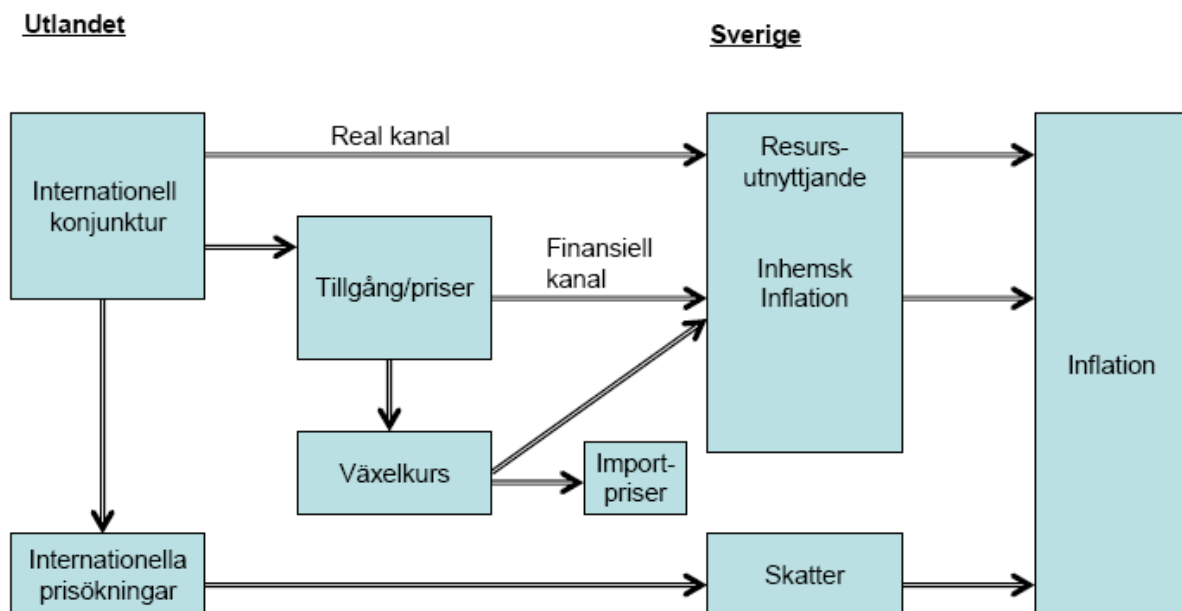
Riksbanken bedriver en s.k. flexibel inflationsmålspolitik. Riksbanken kan välja att bortse från direkta effekter som bidrar till att inflationen tillfälligt avviker från målet. Det sker regelmässigt när det gäller direkta effekter av indirekta skatter och hushållens räntekostnader för boende. Exempel på utbudsstörningar som kan påverka inflationen tillfälligt är vattenbrist i dammarna för elproduktion vilket kan pressa upp elpriserna, och kyla eller torka som kan driva upp priset på frukt och grönt. Sådana effekter ska inte penningpolitiken ta hänsyn till. Däremot är Riksbanken uppmärksam på om tillfälliga prisförändringar sprider sig till andra delar av ekonomin, dvs. om andrahandseffekter uppstår. Riksbanken publicerar inflationsprognoser fyra gånger per år, den senaste publicerades månadsskiftet november/december 2005.

Kapacitetsutnyttjandet, räntan och efterfrågan

Det medel Riksbanken har för att styra inflationen är den s.k. reporäntan. Det är den ränta som bankerna får betala för att låna pengar av Riksbanken. Målet med ändringar av reporäntan är att påverka efterfrågeläget i ekonomin i syfte att stabilisera prisutvecklingen. Detta kan beskrivas med utgångspunkt i ett produktionsgap som består av skillnaden mellan den faktiska produktionen i en ekonomi och dess potentiella produktion.

Ett negativt gap innebär att efterfrågetrycket på varor, tjänster och produktionsfaktorer är litet och det finns gott om lediga resurser i ekonomin. Pris- och löneökningarna är små och inflationen vanligtvis under målet. Ett positivt gap innebär att den faktiska produktionen överstiger den potentiella, resursläget är ansträngt, efterfrågan på arbetskraft överstiger utbudet, löner pressas upp och inflationen är högre än målet. Produktionsgapet visar alltså efterfrågetrycket i ekonomin, medan efterfrågetrycket i sin tur påverkar inflationen.

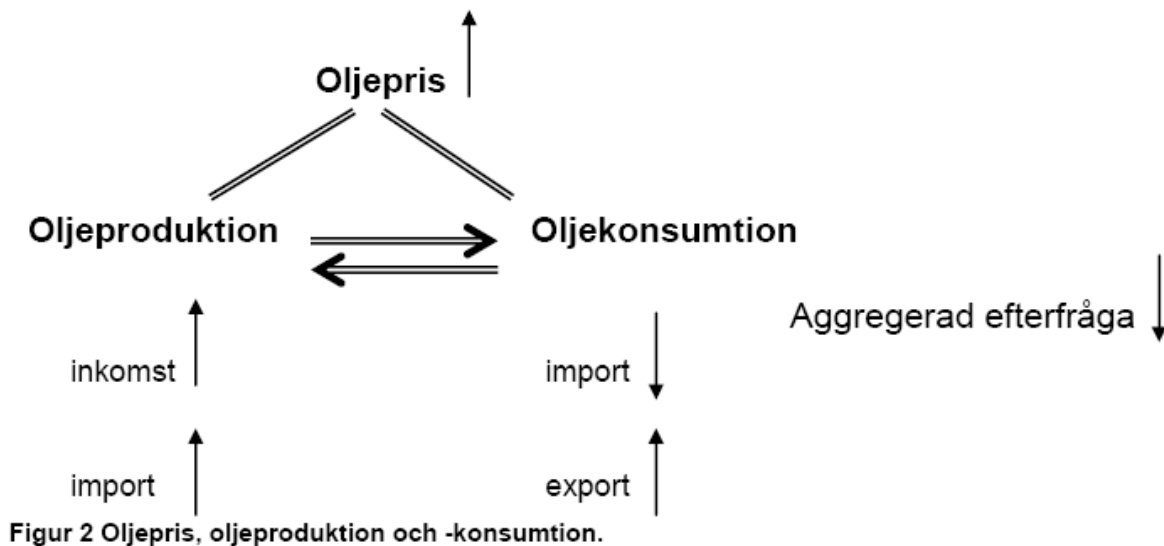
Penningpolitiken handlar om att välja en ränta som påverkar efterfrågan i sådan riktning att gapets storlek blir så litet som möjligt. Om faktisk och potentiell produktion sammanfaller så att produktionsgapet är slutet är tanken att inflationen är i linje med Riksbankens mål, förutsatt att penningpolitiken är trovärdig. När Riksbanken förändrar reporäntan påverkas den samlade efterfrågan och i förlängningen även inflationen genom olika kanaler i ekonomin. Dessa kanaler är kostnaden för att låna, incitamenten att spara, förmögenhetsvärden samt växelkursförändringar som påverkar exporten och importen. Därtill påverkas också förväntningarna om inflationen. För att en ränteförändring ska få effekt via dessa kanaler tar det tid; man brukar räkna med att den största effekten fås efter ungefär 1-2 år. Penningpolitiken bedrivs därför med denna tidshorisont. Genom att påverka efterfrågeläget i ekonomin försöker Riksbanken alltså normalt styra inflationen på 1-2 års sikt mot målet på 2 procent. Figur 1 visar på faktorer som påverkar inflationen.



Figur 1 Faktorer som påverkar inflationen.

Oljepriset och penningpolitiken

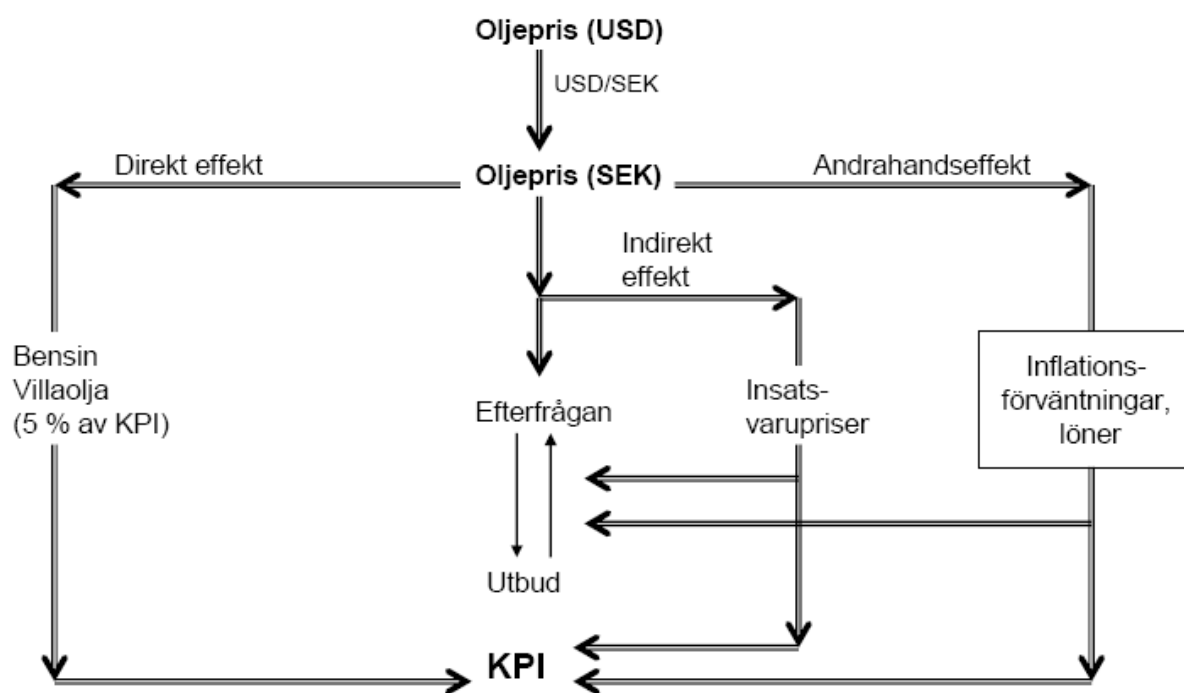
I prognosarbetet på Riksbanken följs bl.a. priserna på Brentolja, som är ett samlingsnamn för de oljor som kommer från fälten kring Nordsjön. Olika studier visar att det är i det mycket svårt att göra bra oljeprisprognoser och Riksbanken har därför valt att utgå från prissättningen på terminsmarknaden i oljeprisprognoserna. Oljepriset kan, rent teoretiskt, påverka makroekonomin på olika sätt. Till att börja med drabbar en ökning av oljepriset olika länder på olika sätt. I praktiken sker en inkomstöverföring (köpkraft) från länder som importerar olja till länder som exporterar olja. Den minskning i den aggregerade efterfrågan som detta leder till i de oljeimporterande länderna kan visserligen delvis motverkas av en ökad importefterfrågan från oljeexporterande länder, men den sammantagna effekten i de oljeimporterande länderna tenderar att bli negativ åtminstone på kort sikt. I grova drag kan oljeprisets koppling till produktion och konsumtion visas på följande sätt, se Figur 2.



Figur 2 Oljepris, oljeproduktion och -konsumtion.

Eva Srejber menade att när vi ser till de senaste årens oljeprisutveckling är det viktigt att komma ihåg att det finns skillnader mellan dagens situation och tidigare kraftiga oljeprisuppgångar. Dessa skillnader talar för att de makroekonomiska effekterna kan förväntas bli förhållandevis begränsade, åtminstone om oljepriset sjunker tillbaka något de närmaste åren. Det som framförallt skiljer sig är drivkrafterna bakom oljeprisökningen. Tidigare oljeprisstegringar berodde i allt väsentligt på minskningar i utbudet av olja kopplade till väpnade konflikter eller kartellbildning. Nu tycks istället oljeprisuppgången till stor del bero på en oväntat kraftig ökning av den globala efterfrågan på olja, inte minst från de snabbt växande kinesiska och indiska ekonomierna, även om utbudsstörningar på marginalen har bidragit, inte minst i USA, under hösten. En sådan oljeprisuppgång får rimligen mindre negativa realekonomiska konsekvenser än en mer renodlad utbudsstörning. Effekterna på inflationen kan dock bli större, men det finns samtidigt andra faktorer som talar för att oljeprisökningar idag har ett mindre genomslag på inflationen än under tidigare perioder. Därtill är de flesta ekonomier i västvärlden idag är betydligt mindre beroende av olja än vad som var fallet under 1970-talet. Detta talar för att de realekonomiska konsekvenserna sannolikt blir mer begränsade och effekten på inflationen måttlig.

En av de mer centrala faktorerna som talar för ett relativt begränsat genomslag på inflationen hänger samman med att många länder numera har låg och stabil inflation som mål. Risken för spridningseffekter av en oljeprisökning är rimligen mindre om de ekonomiska aktörerna räknar med att inflationen i framtiden kommer att förbli låg. Det borde medföra att möjligheterna att ta realekonomiska hänsyn vid utformningen av penningpolitiken kan vara något större än under tidigare perioder, då inflationsförväntningarna var dåligt förankrade. Den etablerade låginflationsregimen i Sverige idag talar för att oljeprischocker numera får ett mindre "andrahands"- genomslag på inflationen än under tidigare perioder. Den inflationsmålspolitik som Sverige bedriver hjälper till att förankra inflationsförväntningarna och ger därför ett skydd mot att inflationsimpulser varaktigt får fotfäste. Effekterna av en oljeprisökning beror också på var ekonomin befinner sig i utgångsläget. Resursutnyttjandet i den svenska ekonomin är fortfarande måttligt, om än ökande, och trots en relativt hög tillväxt finns än så länge få tecken på flaskhalsar i produktionen. Samtidigt är inflationen låg. Detta borde också minska risken för mer omfattande spridningseffekter till övriga priser och till förväntningsbildningen. En något mer detaljerad figur för oljeprisets inverkan på den svenska ekonomin visas i Figur 3.



Figur 3. Oljepriset och dess effekter på ekonomin.

Jan Häggström

Jan Häggström är chefsekonom på Handelsbanken.

Inledning

Jan Häggström presenterade effekter av oljeprishöjningar på den amerikanska ekonomin och den svenska ekonomin.

USA

Bensinpriset i USA har länge varit mycket lägre än det i Sverige. Å andra sidan konsumerar de amerikanska hushållen mer bensin och är i högre grad beroende av bensin än de svenska hushållen. Den höga skatten i Sverige gör att en eventuell prishöjning på olja inte får samma marginaleffekt som i USA.

Bensinpriset ökade kraftigt i augusti 2005 vilket påverkade den reella disponibla inkomsten för hushållen. Med den kraftig ökningen i bensinpriset påverkades även arbetsmarknaden negativt med en lägre prognos på antal arbetstillfällen. Dessa trender uppvisades även vid tidigare energikriser som till exempel vid 1973-1974. En recession med minskad köpkraft som följd tillsammans med en penningpolitisk respons hade en psykologisk effekt på konsumenternas förtroende. Det kan dock noteras att den globala tillverkningsindustrin har oljepriset till trots ökat.

Den penningpolitiska responsen konstaterades viktig för effekten av oljeprishöjningar. Ett sätt att fånga upp ekonomiska samband för olika länder är genom simulering. Jan Häggström visade resultat från den så kallade NIGEMmodellen (National Institute Global Econometric Model). Med hjälp av modellen kan inverkan av penningpolitiska inställningar på exempelvis responsen hos räntan, bruttonationalprodukten (BNP) och inflationen visas. Dessa inställningar kan vara "hawk" ("hök", d.v.s. agera nu) eller "dove" ("duva", d.v.s. agera senare). Till exempel, en "dove"-inställning medför att effekten av en oljeprishöjning på USA:s BNP och inflation ger upphov till en större amplitud på svängningarna över tiden innan en stabilisering sker. Mönstret för den ekonomiska och monetära unionen (EMU) är dock annorlunda är det för USA. Oljeprisets inverkan på hushållens ekonomi är inte så stor inom EMU som i USA.

Sverige

Jan Häggström visade på att globala effekter påverkar Sveriges ekonomis respons medan energipriser däremot har en förhållandevis liten inverkan på den svenska inflationen. Han menade vidare att ett högt realoljepris stimulerar troligen investeringar. Efterfrågan på olja tyder på en efterfråga på andra råvaror. Visserligen undertrycker ett högt oljepris något av hushållens investeringar men däremot inte av industrins investeringar av produktion av exportvaror. Exempel på detta är att Sverige exporterar relativt få konsumtionsvaror, till exempel bilar, läkemedel och mobiltelefoner, som totalt står för cirka 100 miljarder SEK. Däremot exporterar Sverige relativt mycket investerings- och producentvaror, exempelvis produkter från mass- och pappersindustrier, stålindustri och telekom- industrier. Exporten av dessa varor är 4 gånger större än den för konsumtionsvaror och motsvarar cirka 400 miljarder SEK.