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## **KOMISIJOS KOMUNIKATAS**

### **Biomasės naudojimo veiksmų planas**

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### Biomasės naudojimo veiksmų planas

#### 1. ĮVADAS

Energija yra pagrindas, kuriuo remdamasi Europa gali siekti augimo, užimtumo ir tvarumo tikslų. Didelės naftos kainos rodo vis stiprėjančią Europos priklausomybę nuo importuojamos energijos.

Europos Sąjunga turi ryžtingai spręsti šį sunkų uždavinį. 2005 metų spalio mėn. Hemptono rūmuose vykusiame neformaliame vadovų susitikime Sąjungos valstybių ir vyriausybių vadovai patvirtino, kad energetikos politika yra vienas svarbiausių klausimų Europai sprendžiant globalizacijos problemas.

Atsižvelgdama į tai, Komisija šiuo metu iš pagrindų peržiūri savo energetikos politiką. 2006 metų pavasarį šia tema bus parengta Žalioji knyga, kurioje bus numatyti trys pagrindiniai tikslai: konkurencingumas, tvarumas ir tiekimo saugumas.

Didesnio ekonomikos augimo sąlygomis esminiai šios politikos elementai yra šie: poreikis sumažinti energijos paklausą<sup>1</sup>; atsinaujinančių energijos šaltinių svarbos didinimas atsižvelgiant į jų gamybos Sąjungoje potencialą ir jų tvarumą, energijos šaltinių įvairinimas, tarptautinio bendradarbiavimo skatinimas. Šie elementai gali padėti Europai tapti mažiau priklausoma nuo energijos importo, didinti tvarumą ir skatinti augimą bei užimtumą.

Norint sėkmingai siekti šių tikslų, reikalingas nuoseklus administravimas ir tinkami tvarkaraščiai. Prireiks mechanizmų, kurių pagalba į šį procesą būtų įtraukiamos valstybės narės, taip pat Europos Parlamento ir suinteresuotųjų šalių atstovai<sup>2</sup>.

Taigi šį veiksmų planą Komisija pateikia remdamasi platesne prasme suprantama integruota bei nuoseklia energetikos politika, ypač skatinimu naudoti atsinaujinančius energijos šaltinius. Jis yra tik vienas iš visų priemonių, kuriomis reikėtų siekti aukščiau išdėstytų tikslų, elementų; tačiau tai labai svarbus elementas, nes biomasė šiuo metu sudaro maždaug pusę ES naudojamos atsinaujinančios energijos<sup>3</sup>.

Savo 2004 metų Komunikate dėl atsinaujinančios energijos dalies Europos Sąjungoje Europos Komisija išipareigojo parengti biomasės naudojimo veiksmų planą, pabrėždama, kad reikalingas koordinuotas požiūris į biomasės politiką.<sup>4</sup> 2004 m. pavasario Vadovų Tarybos susitikime buvo padaryta išvada, kad naudoti daugiau atsinaujinančios energijos būtina dėl

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<sup>1</sup> Šis klausimas keltas neseniai parengtoje Žaliojoje knygoje „Apie energijos efektyvumą arba kaip mažesnėmis sąnaudomis sutaupyti daugiau energijos“, KOM (2005) 265.

<sup>2</sup> Šiems mechanizms bus priskirti Energetikos ir transporto forumas, „Amsterdamo“ tvariosios energijos forumas, „Berlyno“ iškastinio kuro forumas, „Florencijos“ elektros energijos reguliavimo forumas ir „Madrido“ dujų reguliavimo forumas. Be to Komisija neseniai nusprendė įkurti aukšto lygio grupę, skirtą konkurencingumo, energetikos ir aplinkosaugos reikalams.

<sup>3</sup> 44 % pagal „pakeitimo metodą“, 65 % pagal „klasikinį metodą“ (žr. poveikio įvertinimą, 2 skirsnį).

<sup>4</sup> „Atsinaujinančios energijos dalis ES“, KOM (2004) 366, 4.3.1 skirsnis.

„aplinkosaugos ir konkurencingumo priežasčių“<sup>5</sup>, o Europos Parlamentas neseniai pažymėjo, kad „biomasė turi daug privalumų, palyginti su tradiciniais energijos šaltiniais ir net kai kuriomis kitomis atsinaujinančios energijos rūšimis, pirmiausia dėl palyginti mažų sąnaudų, mažesnės priklausomybės nuo trumpalaikių oro permainų, regioninių ekonominių struktūrų vystymosi skatinimo ir alternatyvių pajamų šaltinių teikimo ūkininkams“<sup>6</sup>.

Šiame veiksmų plane nustatomos priemonės, turinčios paspartinti biomasės energijos gamybos iš medienos, atliekų ir žemės ūkio kultūrų, kuriant rinkos dėsniais paremtus stimulus šiai energijai naudoti ir šalinant kliūtis, neleidžiančias šiai rinkai vystytis. Taip Europa galės tapti mažiau priklausoma nuo iškastinio kuro, sumažinti šiltnamio efektą sukeliančių dujų išmetimą ir pagyventi ekonominę veiklą kaimo vietovėse. Visos priemonės išvardijamos 1 priede.

Šis veiksmų planas yra pirmasis koordinuojantis etapas. Jame nustatomos biomasės naudojimą šildymui, elektros energijos gamybai ir transportui skatinančios priemonės, bei bendrosios priemonės, skirtos biomasės tiekimui, finansavimui ir moksliniams tyrimams. Šis planas papildomas bendru poveikio vertinimu. Antrajame etape bus pasiūlytos atskiros priemonės, atsižvelgiant į poveikio vertinimą laikantis Komisijos taisyklių.

### 1.1. Biomasės potencialas

Šiuo metu iš biomasės gaunama energija tenkina 4 % ES energijos poreikio. Išnaudodama visą potencialą ES galėtų iki 2010 metų padidinti biomasės naudojimą daugiau negu du kartus (nuo 69 mtoe<sup>7</sup> 2003 metais iki maždaug 185 mtoe 2010 metais), laikydamosi geros žemės ūkio praktikos, išsaugodama tvarią biomasės gamybą ir tik nežymiai paveikdama vidaus maisto produktų gamybą<sup>8</sup>. Bulgarijai ir Rumunijai tapus valstybėmis narėmis atsiras daugiau galimybių naudoti biomasę<sup>9</sup>, o importo teikiamos galimybės vis dar didėja.

Komisijos vertinimu, šio veiksmų plano priemonės galėtų padidinti biomasės naudojimą iki maždaug 150 mtoe 2010 metais arba netrukus po to<sup>10</sup>. Tai nėra visas biomasės potencialas; tai tik skaičiai, atitinkantys orientacinius atsinaujinančios energijos naudojimo tikslus<sup>11</sup>.

### 1.2. Išlaidos ir nauda

Keleto mokslinių ir ekonominių tyrimų rezultatai rodo, kad šitaip padidėjęs naudojamos biomasės kiekis 2010 metais galėtų atnešti tokios naudos:

- vykūtų Europos energijos tiekimo diversifikavimas, 5 % padidėtų atsinaujinančios energijos naudojimas, o priklausomybė nuo importuojamos energijos sumažėtų nuo 48 % iki 42 %<sup>12</sup>;

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<sup>5</sup> Briuselio Europos Taryba, 2004 m. kovo 25 ir 26 d., pirmininkaujančios valstybės narės išvados.

<sup>6</sup> Rezoliucija dėl „Atsinaujinančios energijos dalies ES“, 2005 m. rugsėjo 28 d. plenarinis posėdis.

<sup>7</sup> Mln. tonų naftos atitikmuo.

<sup>8</sup> Europos aplinkos agentūra, pasitarimas tema „Kiek biomasės Europa gali naudoti nedarydama žalos aplinkai?“, 2005 m. vasario mėn. žr. 2 priedą.

<sup>9</sup> Pavyzdžiui, tiek Bulgarijoje, tiek Rumunijoje vienam gyventojui tenka po 0,7 ha žemės ūkio naudmenų, palyginti su 0,4 ha 25 valstybių narių ES.

<sup>10</sup> Žr. 3 priedą ir poveikio vertinimą.

<sup>11</sup> Šie tikslai yra: iki 2010 metų pasiekti 12 % bendro atsinaujinančios energijos naudojimo, 21 % atsinaujinančios energijos elektros energijos sektoriuje ir 5,75 % biokuro. Komisijos vertinimu, veiksmų plano priemonės padėtų šiuos tikslus pasiekti, o bendras tikslas veikiausiai galėtų būti pasiektas jei ne 2010 metais, tai vieneriais ar dvejais metais vėliau.

- per metus šiltnamio efektą sukeliančių CO<sub>2</sub> ekvivalento dujų išmetimas sumažėtų 209 mln. tonų;<sup>13</sup>
- tiesiogiai įdarbinta būtų iki 250–300 tūkst. žmonių, daugiausia kaimo vietovėse (skirtingais tyrimais gaunami labai skirtingi skaičiai);<sup>14</sup>
- dėl mažesnės naftos paklausos potencialiai būtų pristabdytas naftos kainų augimas.

Padarius prielaidą, kad iškastinio kuro kainos bus maždaug 10 % žemesnės negu dabar, galima spėti, kad tiesiogiai apskaičiuojamos išlaidos sudarys 9 mlrd. EUR per metus: 6 mlrd. EUR transporto biokuroi ir 3 mlrd. EUR elektros gamybai iš biomasės (šildymui naudojama biomasė dažnai yra ekonomiškai konkurencinga)<sup>15</sup>. Tai atitinka maždaug 1,5 cento vienam litrai benzino arba dyzelino ir 0,1 cento už kilovatvalandę elektros pabrangimą<sup>16</sup>.

Naudos taip pat galima gauti didinant ES technologinį pirmavimą šiuose sektoriuose.

Tiek naudos galima tikėtis nesukeliant papildomos taršos ir nedarant jokios kitos žalos aplinkai<sup>17</sup>.

Komisija šiuo metu vertina, kokią vietą tarp visų kitų energijos rūšių iki 2020 metų galėtų užimti atsinaujinanti energija. Šis veiksmų planas iki 2020 metų galėtų padidinti naudojamos atsinaujinančios energijos vaidmenį.

### 1.3. Biomasės naudojimas transportui, elektros energijos ir šilumos gamybai

Per pastaruosius ketverius metus naftos kaina išaugo trigubai. Transporto sektorius yra pagrindinis ekonomikos sektorius; beveik visa transportui skirta energija gaunama iš naftos. Skystasis biokuras yra vienintelis transportui tinkamas tiesioginis naftos pakaitalas, taigi šiuo metu politikoje jam skiriamas didžiulis dėmesys yra pateisinamas.

Be to, dėl nuolatinio transporto sektoriaus augimo kol kas nepavyksta stabilizuoti šiltnamio efektą sukeliančių dujų išmetimo, nepaisant nemažų pramonės atstovų pastangų. Biokuras yra brangus būdas šiltnamio efektą sukeliančių dujų išmetimui mažinti, tačiau transporto srityje yra tik dvi priemonės, iš kurių būtų galima tikėtis akivaizdaus situacijos pagerėjimo artimiausioje ateityje. (Kita priemonė būtų automobilių gamintojų susitarimas sumažinti naujų automobilių CO<sub>2</sub> išmetimą (žr. 4.2 skirsnį)).

<sup>12</sup> Žr. poveikio įvertinimą, 5 skirsnį.

<sup>13</sup> Žr. poveikio įvertinimą, 5 skirsnį.

<sup>14</sup> Šis skaičius pateikiamas darant prielaidą, kad 70–90 % biomasės pagaminama ES. Tiesioginis užimtumas biokuro gamyboje ES paprastai yra 50–100 kartų didesnis negu iškastinio kuro gamyboje, biomasės elektros energijos gamyboje 10–20 kartų didesnis negu kitose energijos gamybos srityse, o šildymo biomase srityje užimtumas yra didesnis du kartus. Ekspertai nėra vieningos nuomonės dėl netiesioginio poveikio. Kai kurie iš jų nurodo koeficientus arba eksporto galimybes, kurios gali padvigubinti tiesioginio poveikio mastą. Kiti teigia, kad darbo vietos bioenergetikos sektoriuje pakeis kitas darbo vietas, o bendras poveikis užimtumui bus lygus nuliui. (Žr. poveikio įvertinimą, 5 skirsnį.)

<sup>15</sup> Žr. poveikio įvertinimą, 5 skirsnį.

<sup>16</sup> Nafta kainuoja apie 60 JAV dolerių už barelį arba (pagal šiandieninį valiutų keitimo kursą) 48 eurus už barelį. Kad biodyzelinas galėtų konkuruoti su nafta, jos kaina turėtų būti maždaug 75 EUR už barelį, o bioetanolis – maždaug 95 EUR. Jeigu iškastinio kuro kaina atspindėtų netiesiogines išlaidas, ekonomiškai konkurencingomis taptų daugiau biomasės formų.

<sup>17</sup> Žr. 4 priedą.

2006 metų pradžioje Komisija pasiūlys specialų biokuroi skirtą komunikatą.

Nors biokuro naudojimas transportui labiausiai skatina užimtumą, o jo tiekimas yra patikimiausias, tačiau biomasės naudojimas elektros gamybai gali duoti didžiausios naudos mažinant šiltnamio efektą sukeliančių dujų išmetimą, o jos naudojimas šilumos gamybai yra pigiausias. Biomasės naudojimą reikėtų skatinti visuose trijuose sektoriuose. Bent iki 2010 metų didelės konkurencijos dėl žaliavų nebus: biokuro gamybai daugiausiai naudojamos žemės ūkio kultūros, o elektros energijai bei šildymui – mediena ir atliekos.

## **2. BIOMASĖS NAUDOJIMAS ŠILUMOS GAMYBAI**

Biomasės naudojimo gyvenamųjų namų ir pramoniniam šildymui technologija yra paprasta ir pigi. Biomasės naudojimas čia turi tvirtas tradicijas; šiame sektoriuje jos naudojama daugiausiai. Įdiegtų naujų metodų pagalba mediena ir švarios atliekos gali būti perdirbamos į standartizuotas granules, kurios nekenkia aplinkai ir yra patogios naudoti.

Nepaisant šių privalumų, biomasės naudojimas šildymui didėja lėčiausiai.

Atidžiai kontroliuodama Bendrijos teisės aktų dėl termofikacijos<sup>18</sup> – svarbios biomasės realizavimo rinkos – įgyvendinimą, Komisija spręs šį klausimą tokiomis priemonėmis:

### **2.1. Teisės aktai dėl atsinaujinančios energijos naudojimo šilumos gamybai**

Jau turint direktyvas dėl elektros energijos ir transporto, šie aktai yra trūkstama galvosūkio dalis. Komisija ketina pradėti šių teisės aktų rengimą 2006 metais. Tam reikia kiek kitokio požiūrio negu ankstesnėse direktyvose, nes pagrindinės problemos yra susijusios su pasitikėjimu rinka ir skirtingais požiūriais, o ne išlaidomis. Nagrinėtini elementai yra šie:

- Nauji specifiniai teisės aktai dėl atsinaujinančios energijos naudojimo šildymui, kurių pagrindą sudaro:
  - priemonių, užtikrinančių, kad kuro tiekėjai aprūpins reikiamu biomasės kuru;
  - biomasės ir įrenginių, kuriuose ji naudojama, veiksmingumo kriterijų nustatymo;
  - įrangos ženklavimo, padedančio žmonėms įsigyti švarių ir veiksmingų įrenginių;
  - kitų techninių priemonių;
  - tikslų nustatymo tinkamumo, ir
  - nepriverstinių susitarimų su pramonės atstovais
- kritiškas įvertinimas, atsižvelgiant į jų potencialią naudą. Direktyvos dėl pastatų energinio naudingumo dalinis pakeitimas, siekiant paskatinti naudoti atsinaujinančią energiją.<sup>19</sup>

<sup>18</sup> Direktyva 2004/8/EB dėl termofikacijos skatinimo, 2004 2 11.

<sup>19</sup> Direktyva 2002/91/EB dėl pastatų energinio naudingumo, OL L1, 2003 1 4, žr. 5 priedą.

- Mokslinis tyrimas, siekiant išsiaiškinti, kaip įmanoma gerinti buitinių biomase kūrenamų katilų eksploatavimą ir sumažinti taršą<sup>20</sup>, kad būtų galima nustatyti reikalavimus pagal ekologinio projektavimo direktyvą<sup>21</sup>.

## 2.2. Centralizuoto šildymo atnaujinimas

Centralizuotam (kolektyviniam) šildymui daug lengviau naudoti atsinaujinantį kurą, deginant daugiau kuro rūšių ir išmetant į orą mažiau dujų. Plėtoti biomasės naudojimą centralizuotam šildymui yra lengviau negu individualiam šildymui.

56 mln. ES gyventojų šiluma tiekama centralizuotai; 61 % jų gyvena naujosiose valstybėse narėse. Bulgarijai ir Rumunijai tapus valstybėmis narėmis, centralizuotu šildymu besinaudojančių gyventojų dar padaugės. Tačiau čia kelia problemų centralizuoto šildymo konkuravimas su individualiu šildymu. Daugumai sistemų reikia šiuolaikiškų įrenginių, infrastruktūros ir valdymo, kad būtų galima sėkmingiau naudoti kurą, kad jos taptų ekonomiškesnės ir patogesnės naudoti. Sistemas reikia pertvarkyti, kad jose būtų galima kurui naudoti biomasę. Komisija skatina šiuo būdu tobulinti centralizuoto šildymo sistemas.

Komisija ragina Tarybą pritarti jos pasiūlymui įtraukti centralizuotą šildymo tiekimą į prekių ir paslaugų, kurioms valstybės narės gali taikyti sumažintą PVM tarifą, sąrašą<sup>22</sup>. Tokiu atveju Komisija rekomenduotų valstybėms narėms centralizuotam šildymui taikyti bet kurią sumažintą PVM normą, kuri jau taikoma gamtinėms dujoms ar elektros energijai.

Komisija taip pat gali pateikti pasiūlymą dėl teisės akto, skirto centralizuoto šildymo mokesčių klausimams. Be to, Komisija ketina ištirti, ar tuo pačiu metu nereikėtų pasiūlyti ir kitokių priemonių.

## 3. ELEKTROS ENERGIJOS GAMYBA IŠ BIOMASĖS

Elektros energiją galima gaminti iš visų rūšių biomasės, naudojant keletą technologijų (žr. 6 priedą). Komisija skatina valstybės nars naudoti visus ekonomiškus elektros gamybos iš biomasės būdus.

Direktyvoje dėl elektros gamybos iš atsinaujinančių energijos išteklių numatoma biomasės naudojimo elektros gamybai sistema<sup>23</sup>. Valstybės narės yra įsipareigojusios siekti elektros gamybos iš atsinaujinančios energijos šaltinių tikslų. Daugelis šių tikslų atrodo nepasiekiami, jei nebus naudojama daugiau biomasės<sup>24</sup>. Todėl direktyvos įgyvendinimas turi ypatingą

<sup>20</sup> Jeigu biomasė deginama be reikiamos priežiūros, ji gali tapti dideliu taršos šaltiniu. Taip atsitinka nelegaliai deginant atliekas arba naudojant biomasės katilus be tinkamos degimo kontrolės ir taršos prevencijos. Šiuolaikiški granulėmis kūrenami katilai ir centralizuoto šildymo katilinės aplinką teršia gerokai mažiau.

<sup>21</sup> Direktyva 2005/32/EB, nustatanti ekologinio projektavimo reikalavimų energiją vartojantiems gaminiams nustatymo sistemą, OL L191, 2005 7 22.

<sup>22</sup> KOM (2003) 397, 2003 7 23.

<sup>23</sup> 2001 m. rugsėjo 27 d. Direktyva 2001/77/EB dėl elektros, pagamintos iš atsinaujinančiųjų energijos išteklių, skatinimo elektros energijos vidaus rinkoje, OL L283, 2001 10 27.

<sup>24</sup> Praeitų metų komunikate dėl atsinaujinančios energijos naudojimo Komisija atkreipė dėmesį į tai, kad iš trijų pagrindinių elektros gamybai naudojamų atsinaujinančios energijos šaltinių vandens energijos naudojimas beveik nekinta, biomasės naudojimas didėja pamažu, o vėjo energijos naudojimas didėja sparčiai. Direktyvos tikslai nebus pasiekti, jeigu biomasės naudojimo augimas nepagreitės.

reikšmę biomasės naudojimui elektros gamyboje. Komisija ir toliau ketina skirti tam daug dėmesio<sup>25</sup>.

Mišrioje šilumą ir elektros energiją gaminančiose jėgainėse iš biomasės galima tuo pačiu metu gaminti šilumą ir elektros energiją. Komisija skatina valstybes nares savo paramos sistemose atkreipti dėmesį į šių jėgainių teikiamą dvigubą naudą.

## **4. TRANSPORTUI NAUDOJAMAS BIOKURAS**

### **4.1. Biokuro direktyvos įgyvendinimas**

Kaip ir elektros gamyboje, biokuro naudojimas transportui yra nustatytas Bendrijos teisės aktu, būtent, biokuro direktyva<sup>26</sup>, kurioje nustatomos šios rekomenduojamos vertės: 2005 metais biokuro naudojimas turi apimti 2 % visos rinkos, o 2010 metais – 5,75 %<sup>27</sup>.

2005 metų rekomenduojamos vertės jau nepavyks pasiekti. Valstybių narių pastangos šiuo atžvilgiu labai skiriasi<sup>28</sup>. Net jeigu visos valstybės narės pasieks užsibrėžtus tikslus, biokuras užims tik 1,4 % rinkos dalies.

Dauguma valstybių narių įgyvendindamos šią direktyvą remiasi atleidimu nuo kuro mokesčių<sup>29</sup>. Tokioms lengvatoms taikoma valstybės pagalbos kontrolė. Komisija, atsižvelgdama į valstybės pagalbos aplinkosaugai gaires, palankiai įvertino gautą informaciją. Tačiau kilo daug praktinio pobūdžio sunkumų. Dalis valstybių narių neseniai pradėjo taikyti biokuro tiekimo prievolės, reikalaujamos, kad kurą tiekiančios įmonės kartu su kitu rinkai tiekiamu kuru tiektų ir nustatytą procentinį kiekį biokuro. Išsamesnė informacija apie šiuos metodus pateikiama 9 priede. Atrodo, kad biokuro tiekimo prievolės yra perspektyvus būdas įveikti sunkumus, susijusius su atleidimu nuo mokesčių, ir užtikrinti ekonomišką bei tikslų įgyvendinimą. Jie taip pat sudaro palankias sąlygas naudoti antrosios kartos biokurą; Komisija palaiko tokį požiūrį.

Komisija, laikydamasi biokuro direktyvos, 2006 metais parengs pranešimą apie jos įgyvendinimą. Neatmetama ir direktyvos peržiūrėjimo galimybė. Pranešime bus aptariami tokie klausimai:

- nacionaliniai tikslai dėl biokuro užimamos vietos rinkoje;
- biokuro tiekimo prievolių taikymas;
- būtinybė pasitelkti sertifikatų sistemą, pagal kurią siekiant minėtų tikslų būtų atsižvelgiama tik į tokį biokurą, kurio žaliava auginama laikantis bent minimalių tvarumo standartų<sup>30</sup>.

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<sup>25</sup> Žr. atskirą komunikatą dėl paramos atsinaujinančios energijos naudojimui elektros energijos gamyboje (KOM(2005) 627).

<sup>26</sup> 2003 m. kovo 8 d. Direktyva 2003/30/EB dėl skatinimo naudoti biokurą ir kitą atsinaujinantį kurą transporte, OL L123, 2003 5 17.

<sup>27</sup> Žr. 7 priedą.

<sup>28</sup> Žr. 8 priedą.

<sup>29</sup> Jo taikymą palengvina 2003 m. spalio 27 d. Direktyva 2003/96/EB, pakeičianti Bendrijos energetikos produktų ir elektros energijos mokesčių struktūrą, OL L283, 2003 10 31.

<sup>30</sup> Komisija taip pat ieškos būdų, kaip minimalius tvarumo standartus būtų galima pritaikyti ir kitiems energiniams tikslams naudojamai biomasei.

Sertifikatų sistema turėtų būti nešališku principu taikoma šalies viduje gaminamam ir importuojamam kurui.

#### **4.2. Transporto priemonių rinka**

Komisija netrukus pasiūlys teisės aktą, skatinantį švarių transporto priemonių, varomų degalų mišiniais, kuriuose didelę dalį sudaro biokuras, viešuosius pirkimus<sup>31</sup>.

Komisija tiria, kiek alternatyvių degalų, įskaitant biokurą, naudojimas gali pasitarnauti mažinant mažos keliamosios galios transporto priemonių išmetamų CO<sub>2</sub> dujų kiekį. Tai yra Komisijos tyrimo dalis, norint išsiaiškinti, kokiais būdais galima siekti Bendrijos tikslo nustatyti 120 g/km vidutinį išmetamųjų dujų kiekį. Ateities strategija, kuri turės būti pasiūlyta 2006 m., bus pagrįsta „integruotu požiūriu“. Tai reiškia, kad automobilių gamintojai turės stengtis priemonių technologijų srityje taikyti tokias priemones kaip biokuro naudojimą, mokesčių lengvatas, informacijos vartotojams teikimą ir kamščių vengimą. Taikant šią strategiją bus atsižvelgiama į automobilių pramonės ateities strategiją, kuriai pasiūlymas bus pateiktas irgi 2006 m.

#### **4.3. Vidaus gamybos ir importo pusiausvyra**

Biokuru ir jo žaliavomis prekiaujama pasaulio rinkose. Tenkinant ES poreikius, autarkija biokuro atžvilgiu yra neįmanoma ir nepageidautina. Tačiau Sąjunga, skatindama vidaus produkciją arba importą, turi tam tikrą veiksmų laisvę. 10 priede apibūdinama dabartinė prekybos bioetanoliu situacija. 11 priede įvertinami trys būdai, kaip galima pasiekti 5,75 % biokuro rinkos dalį. Tai yra:

- minimalios importo dalies nustatymas;
- maksimalios importo dalies nustatymas;
- subalansuotas požiūris.

Komisija teikia pirmenybę subalansuotam požiūriui. Todėl ji:

- pasiūlys standarto EN14214 dalinį pakeitimą, siekdama palengvinti įvairesnių augalinių aliejų naudojimą biodyzelino gamybai tokiu mastu, kad nekiltų pastebimų kuro eksploatacijos trūkumų;
- spęs biokuro direktyvos pakeitimo klausimą taip, kad siekiant tos direktyvos tikslų būtų atsižvelgiama tik į biokurą, gaminamą laikantis bent minimalių tvarumo standartų;
- sieks išlaikyti ne mažiau palankias importuojamo bioetanolio patekimo į rinką sąlygas negu tos, kurios šiuo metu yra nustatytos prekybos susitarimais;
- vis dar vykstančiose derybose dėl laisvos prekybos susitarimo su etanolį gaminančiomis šalimis ir (arba) regionais laikysis pusiausvyros principo. Didėjant biokuro paklausai, ES privalo gerbti vidaus gamintojų ir ES prekybos partnerių interesus;

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<sup>31</sup> Viešieji pirkimai taip pat vaidina svarbų vaidmenį skatinant kitų biomasės formų, ypač naudojamų šildymui, taikymą.



- remis besivystančias šalis, norinčias gaminti biokurą ir vystyti savo vidaus rinkas. Tai yra ypatingai svarbu atsižvelgiant į cukraus sektoriaus reformas<sup>32</sup>.

Komisija pateiks šiuos tikslus dvišalėse derybose (pvz., su Pietų Amerikos bendrosios rinkos valstybėmis) ir daugiašalėse derybose (pvz., Pasaulio prekybos organizacijos derybų etape Dohoje ir diskusijoje dėl prekybos ekologiškai švariomis prekėmis).

#### 4.4. Standartai

Degalų kokybės direktyva<sup>33</sup> nustato etanolio, eterio ir kitų oksigenatų kiekio benzine apribojimus. Ji taip pat apriboja benzino garų slėgį. Standarte EN590 yra nustatyta, kad dyzeline neturi būti daugiau kaip 5 % biodyzelino, skaičiuojant pagal tūrį (4,6 % – energijos atžvilgiu). Dėl šių suvaržymų sunku siekti, kad biokuro būtų naudojama daugiau.

Šiuo metu Komisija persvarsto degalų kokybės direktyvą. Ji įvertins, kokią poveikį pasirinktos priemonės turėtų sprendžiant pirmiau minėtus klausimus. Komisija svarsto daug faktorių, atsižvelgdama į susijusių sektorių sąnaudas ir jiems tenkančią naudą. Svarstydamas šias galimybes, Komisija, *inter alia*, atsižvelgs į:

- poveikį sveikatai ir aplinkai (įskaitant teršalų ir šiltnamio efektą sukeliančių dujų išmetimą);
- poveikį siekiant biokuro direktyvos tikslų ir išlaidas, reikalingas jų siekiant.

#### 4.5. Techninių kliūčių šalinimas

Yra techninių kliūčių, trukdančių pradėti naudoti biokurą. Pavyzdžiui, pramonės atstovai teigia, kad:

- etanolio ir benzino mišinio negalima transportuoti vamzdynais;
- nepraktiška siūlyti benzino bazinio komponento, tinkamo tiesiogiai maišyti su etanolio, kurio garų slėgis būtų mažesnis už įprastą.

Komisija prašys, kad suinteresuotų pramonės šakų atstovai pateiktų techninių tokių kliūčių pagrindimą, taip pat domėtis, ką apie tai mano kitos suinteresuotosios šalys. Ji stebės susijusių pramonės šakų veiklą, norėdama įsitikinti, ar yra sudarytos vienodos sąlygos biokurui naudoti.

#### 4.6. Etanolio naudojimas siekiant sumažinti dyzelino poreikį

Dyzelinių transporto priemonių Europos transporto priemonių parke yra palyginti daug. Tačiau Europa turi daugiau galimybių gaminti ne dyzeliną, o bioetanolį, naudodama mažiau žemės ir turėdama daugiau galimybių mažinti išlaidas dėl masto ekonomijos. Taip pat yra galimybė padidinti etanolio importą iš trečiųjų šalių.

Komisija skatins etanolio naudojimą, kad sumažėtų dyzelino poreikis, įskaitant ir 95 % etanolio naudojimą modifikuotuose dyzeliniuose varikliuose. Peržiūrėdama standartą

<sup>32</sup> Šis aspektas bus toliau svarstomas rengiamame komunikate dėl biokuro.

<sup>33</sup> 1998 m. spalio 13 d. Direktyva 98/70/EB dėl benzino ir dyzelinių degalų (dyzelino) kokybės (OL L350, 1998 12 28) su pakeitimais, padarytais 2003 m. kovo 3 d. Direktyva 2003/17/EB (OL L76, 2003 3 22).

EN14214, Komisija taip pat siūlys apsvarstyti pakeitimą, kuris leistų biodyzelino gamyboje metanolį pakeisti etanoliu.

## **5. BENDRIEJI KLAUSIMAI**

### **5.1. Biomasės tiekimas**

Visų pirmiau minėtų priemonių taikymo sėkmė priklauso nuo tinkamo biomasės tiekimo. Šiame skirsnyje nustatomos priemonės biomasės tiekimui skatinti.

## **Bendroji žemės ūkio politika (BŽŪP)**

2003 m. BŽŪP reforma reiškia, kad parama ūkininkų pajamoms daugiau nėra susijusi su tam tikromis auginamomis kultūromis. Taip ūkininkams suteikiama galimybė laisvai prisitaikyti prie didėjančio energetinių augalų poreikio. Šia reforma taip pat nustatyta speciali „pagalba už energetinius augalus“<sup>34</sup> ir išlaikyta galimybė naudoti privalomą „atidėtą“ žemę nemaistinių augalų, įskaitant energetinius augalus, auginimui. 2006 metais Komisija pateiks Tarybai pranešimą apie pagalbos energetinių augalų auginimui įgyvendinimą, jei reikia, kartu pateikdama pasiūlymus, kuriuose bus atsižvelgiama į Sąjungos biokuro naudojimo tikslus.

Anksčiau pasinaudoti parama pagal „atidėtos žemės“ režimą buvo galima tik auginant ribotą energetinių augalų grupę. Po reformos ūkininkai gali auginti daugiau energetinių augalų, įskaitant dažnos sėjomainos jaunuolynus ir kitas daugiametes kultūras. Sprendimą, kokius energetinius augalus geriau auginti, geriausia būtų priimti regioniniu arba vietos lygiu. Komisija ketina finansuoti informacinę kampaniją apie energetinių augalų ypatybes ir galimybes, kurias teikia jų auginimas<sup>35</sup>. Naujas požiūris ypač svarbus veisiant sparčiai augančius jaunuolynus, nes ūkininkai turi užimti jiems skirtą žemę kelerius metus, o iki pirmojo derliaus turi praeiti bent 4 metai.

## **Miškininkystė**

Apie 35 % kasmet ES miškų tiekiamos medienos produkcijos lieka nepanaudota<sup>36</sup>. Daugumoje šalių smulkių retinimo produktų rinka yra ribota, nors šie produktai gali būti naudojami šilumai ir elektros energijai gaminti. Didžioji dalis nepanaudotų išteklių lieka nedidelėse privačiose valdose, todėl jų surinkimas yra sudėtingas. Kai kurios šalys išsprendė šią problemą, greta esamų įmonių įkurdamos tiekimo grandinės ir remdamos logistines sistemas, miško savininkų bendradarbiavimą bei transporto organizavimą. Komisija sieks skleisti šią vertingą patirtį ir remti panašias iniciatyvas kitose šalyse.

Komisija šiuo metu rengia miškininkystės veiksmų planą, kuris bus priimtas 2006 metais; jame bus sprendžiamas medienos naudojimo energijos gamybai klausimas.

Komisija įvertins energijos gaminimo iš medienos ir jos atliekų poveikį su mišku susijusioms pramonės šakoms.

## **Atliekos**

Atliekos yra nepakankamai naudojamos energijos ištekliai. Komisija šiuo metu rengia teminę atliekų prevencijos ir perdirbimo strategiją bei pasiūlymą dėl pagrindinių atliekoms skirtų teisės aktų peržiūrėjimo. Svarstomos šios galimos priemonės:

- atliekų tvarkymo metodų, mažinančių jų poveikį aplinkai naudojant jas kurui, skatinimas;
- į rinką orientuoto požiūrio taikymas perdirbimui ir utilizavimo veiklai;
- techninių standartų, pagal kuriuos utilizuotos medžiagos būtų laikomos prekėmis, rengimas. Tai leistų lengviau panaudoti šias medžiagas energijos gamybai;

<sup>34</sup> „Energetinių augalų išmoka“, pagal kurią galima gauti 45 EUR premoką vienam h, skirta energetinių augalų auginimui su nustatyta 1,5 mln. h didžiausio garantuoto ploto riba biudžete.

<sup>35</sup> Ši kampanija bus skirta ir miškininkystei.

<sup>36</sup> (Neįtraukiami miškai saugomose vietovėse, pvz., „Natura 2000“ vietovėse.)

- investicijų į ekonomiškus metodus, kuriais būtų galima naudoti atliekas kurui, skatinimas.

## **Šalutiniai gyvūninės kilmės produktai**

Netinkami vartoti žmonėms šalutiniai gyvūninės kilmės produktai vis plačiau utilizuojami energijai, ypač biodujoms ir biodyzelinui, gaminti. Technologinės ir mokslinės pažangos dėka nuolat atrandami nauji gamybos procesai. Komisija apsvarstys, kokia sistema reikalinga tokiems procesams įteisinti, kad būtų galima diegti naujus energijos šaltinius, tuo pačiu palaikant aukštą visuomenės ir gyvūnų sveikatos apsaugos lygį.

## **Standartai**

Europos kietojo biomasės kuro standartai reikalingi tam, kad palengvintų prekybą, plėstų rinkas ir didintų vartotojų pasitikėjimą. Šioje srityje dirba Europos standartizacijos komitetas (CEN). Komisija paskatins jį suteikti šiam darbui ypatingos svarbos.

## **Tiekimo grandinių tobulinimas**

Prekybos granulėmis ir drožlėmis Europos rinka buvo sukurta pagal ES pažangios energetikos Europai programą. Jos prekybos apimtis yra maža. Komisija ieškos būdų, kaip šiuos rezultatus pagerinti, siekdama sukurti visą ES apimančią prekybos sistemą (jei tai yra techniškai ir ekonomiškai įmanoma).

## **Nacionaliniai biomasės naudojimo veiksmų planai**

Nacionaliniai biomasės naudojimo veiksmų planai gali sumažinti investuotojų abejones, įvertinus juose įvairių rūšių biomasės, įskaitant medieną ir jos atliekas bei žemės ūkio kultūrų atliekas, fizinį ir ekonominį tinkamumą, taip pat nustačius, kokioms biomasės rūšims bus teikiama pirmenybė, ir nurodžius atitinkamas skatinimo priemones, kurių bus imtasi nacionaliniu lygiu. Planus taip pat galima sieti su vartotojams skirtomis informacinėmis kampanijomis apie biomasės teikiamą naudą. Būtų naudinga to paties imtis ir regioniniu lygiu. Komisija remia nacionalinių biomasės veiksmų planų rengimą.

### **5.2. ES finansinė parama biomasės energijos gamybai**

Daugelis regionų, gaunančių paramą iš struktūrinių ir sanglaudos fondų, turi didžiulį potencialą vystyti savo ekonomiką ir kurti arba užtikrinti darbo vietas naudojant biomasę. Tuo ypač pasižymi kaimiškieji centrinės ir rytų Europos regionai. Mažos darbo sąnaudos ir didžiuliai ištekliai gali suteikti šiems regionams sąlyginį pranašumą biomasės gamyboje. Todėl parama tokių atsinaujinančios ir alternatyvios energijos šaltinių, kaip biomasė, vystymui yra svarbus struktūrinių fondų ir sanglaudos fondo tikslas, kaip nustatyta Komisijos pasiūlyme dėl Bendrijos strateginių sanglaudos gairių<sup>37</sup>. Šie fondai gali remti ūkininkų perkvalifikavimą, biomasės gamintojų aprūpinimą įranga, investicijas į biokuro ir kitų medžiagų gamybos įrenginius, taip pat elektros gamybai skirtą ir centralizuotam šildymui naudojamo kuro keitimą biomase.

Komisija ragina valstybes nares ir regionus, rengiančius nacionalinius strateginius planus ir veiksmų programas, visapusiškai įvertinti potencialią naudą, kurią gali suteikti biomasė.

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<sup>37</sup> KOM (2005) 299, 2005 7 5.

Ūkiuose ar šalia ūkių vykdomą veiklą, pavyzdžiui, biomasės perdirbimą, taip pat galima remti kaimo plėtros politikos priemonėmis, kaip ir miškų savininkų turimos jų iki šiol nenaudotos biomasės kaupimą. Komisija pasiūlė Bendrijai strategines kaimo plėtros gaires, kuriose pabrėžiama atsinaujinančios energijos svarba, o biomasės tiekimo grandinės išskiriamos kaip ypatingai svarbios<sup>38</sup>. Komisija skatina valstybes nares pasinaudoti šiomis kaimo ekonomikos plėtros ir įvairinimo galimybėmis taikant nacionalines kaimo plėtros programas. Komisija siūlo sudaryti specialią *ad hoc* grupę, kuri svarstytų biomasės galimybes šių programų taikymo srityse.

### 5.3. Valstybės pagalba

Oficiali parama biomasės gamybai ir naudojimui turi atitikti Bendrijos valstybės pagalbos politiką. Komisija gali patvirtinti pagalbos investicijoms ir veiklai teisėtumą, remdamasi Bendrijos gairėmis dėl valstybės pagalbos aplinkos apsaugai<sup>39</sup>. Šiose gairėse atsižvelgiama į naudingą poveikį, kuriuo pasižymi iš biomasės pagaminta energija palyginti su energija, gaminama iš iškastinio kuro. Remiamuose regionuose pagalba investicijoms gali būti derinama su bendrosios rinkos nuostatomis pagal nacionalinės regioninės pagalbos gaires<sup>40</sup>. Pernelyg didelių konkurencijos pažeidimų neturėtų atsirasti. Taip pat žr. 9 priedą.

## 6. MOKSLINIAI TYRIMAI

Komisijos pasiūlyme dėl Septintosios pagrindų programos biomasės moksliniams tyrimams teikiama ypatingai didelė svarba. Ten pateikiama keletas veiksmų, susijusių su biomasės naudojimu:

- „Biomasė kurui, elektros energijai, šildymui ir aušinimui“, turint tikslą parengti ir pademonstruoti technologijų paketą;
- „Pažangieji energijos tinklai“, įskaitant biomasei pritaikytų įrenginių integravimą į elektros energijos tinklus ir biodujų bei sintetinių dujų tiekimą į gamtinių dujų tinklus;
- „Gyvosios gamtos mokslai ir biotechnologija tvariems (ne maisto) produktams ir procesams“, įskaitant biotechnologijos naudojimą biomasės žaliavų produktyvumui, tvarumui bei sudėčiai gerinti ir naujiems biologiniams procesams kurti.

Tarp svarbiausių darbo sričių bus:

- Pramonės valdomos „Biokuro technologijų platformos“ vystymas;
- „Biologinio perdirbimo“ koncepcija, pagal kurią siekiama kuo efektyviau panaudoti visas augalų dalis;
- Antrosios kartos biokuro moksliniai tyrimai, kurių finansavimui tikimasi gauti daug daugiau Bendrijos lėšų.

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<sup>38</sup> KOM (2005) 304.

<sup>39</sup> OL C37, 2001 2 3, p.3.

<sup>40</sup> OL C 74, 1998 3 10, p. 9.

Komisija svarstys, kaip moksliniai tyrimai geriausiai gali pasitarnauti optimizuojant žemės ūkio bei sumedėjusių augalų naudojimą energijos tikslams ir perdirbimo procesus.

Vadovaudamasi Pažangios energetikos Europai programa, Komisija rems moksliniais tyrimais patikrintų metodų sklaidą.

Daugiau informacijos pateikiama 12 priede.

## **7. IŠVADA**

Europa turi mažinti savo priklausomybę nuo iškastinio kuro rūšių. Biomasė yra vienas iš pagrindinių pakaitalų iškastiniam kurui. Europos lygiu reikia taikyti biomasės naudojimą skatinančias ekonomiškas priemones, kad būtų galima:

- maksimaliai naudotis nacionalinėmis ir vietos naujovėmis;
- parodyti aiškią ateities perspektyvą pagrindinėms Europos mastu valdomoms pramonės šakoms;
- sąžiningai paskirstyti prievoles.

Šiuo komunikatu nustatoma koordinuota Bendrijos veiksmų programa, įskaitant priemones, didinančias biomasės paklausą, gerinančias tiekimą, leidžiančias nugalėti technines kliūtis ir plėtoti mokslinius tyrimus.

Šio veiksmų plano rengimas truko beveik metus. Jį rengiant buvo nuolat konsultuojamasi su suinteresuotosiomis šalimis<sup>41</sup>. Jų požiūris į tai, kad šioje srityje Bendrija turėtų imtis ryžtingų priemonių, dažniausiai buvo teigiamas, net entuziastingas. Kitas etapas bus šios programos praktinis įgyvendinimas. 2006 m. pavasarį Žaliojoje knygoje apie nuoseklią Europos energijos politiką bus kalbama apie pasiektą pažangą ir tolesnį vystymą.

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<sup>41</sup> Žr. 13 priedą.

## **PRIEDAS 1 – Biomass action plan: summary of measures**

### **Biomass for heating and electricity**

The Commission will:

- work towards a proposal for Community legislation in 2006 to encourage the use of renewable energy, including biomass, for heating and cooling;
- examine how the directive on energy performance of buildings could be amended to increase incentives for the use of renewable energy;
- study how to improve the performance of household biomass boilers and reduce pollution, with a view to setting requirements in the framework of the eco-design directive;
- encourage district heating scheme owners to modernise them and convert them to biomass fuel;
- encourage Member States that apply a reduced VAT rate to gas and electricity to apply such a rate to district heating too;
- pay close attention to the implementation of the directive on electricity from renewable energy sources;
- encourage Member States to harness the potential of all cost-effective forms of biomass electricity generation;
- encourage Member States to take into account, in their support systems, the fact that, in combined heat and power plants, biomass can provide heat and electricity at the same time.

### **Transport biofuels**

The Commission will:

- Bring forward a report in 2006 in view of a possible revision of the biofuels directive. This report will address the issues of:
  - setting national targets for the share of biofuels;
  - using biofuels obligations on fuel suppliers;
  - ensuring, through certification schemes, that the biofuels used to meet the targets satisfy minimum sustainability requirements.
- Encourage Member States to give favourable treatment to second-generation biofuels in biofuels obligations.
- Bring forward a legislative proposal promoting public procurement of clean and efficient vehicles, including those using high blends of biofuels.



- Examine how biofuel use can count towards the CO<sub>2</sub> emission reduction targets for car fleets.
- Pursue a balanced approach in ongoing free trade agreement negotiations with ethanol-producing countries/regions. The EU must respect the interests of domestic producers and EU trading partners, within the context of rising demand for biofuels.
- Propose amendments to the “biodiesel standard” to facilitate the use of a wider range of oils, including imported oils, to produce biodiesel, and allow ethanol to replace methanol in biodiesel production.
- Assess the impact of options to address the issues of limits on the content of ethanol, ether and other oxygenates in petrol; limits on the vapour content of petrol; and limits on the biodiesel content of diesel.
- Ask the relevant industries to explain the technical justification for practices that act as barriers to the introduction of biofuels and monitor the behaviour of these industries to ensure that there is no discrimination against biofuels.
- Support developing countries by helping them to produce biofuels and by maintaining market access conditions that are no less favourable than those provided by the trade agreements currently in force.
- Bring forward a communication dealing specifically with biofuels early in 2006.

#### Cross-cutting issues

The Commission will:

- Assess the implementation of the energy crop scheme.
- Finance a campaign to inform farmers and forest holders about the properties of energy crops and the opportunities they offer.
- Bring forward a forestry action plan in which energy use of forest material will play an important part.
- Review the impact of the energy use of wood and wood residues on forest based industries.
- Consider how the waste framework legislation could be amended to facilitate the use of clean wastes as fuel.
- Review how the animal by-products legislation could be amended in order to facilitate the authorisation and approval of alternative processes for the production of biogas and other biofuels
- Encourage the European Committee for Standardisation to speed up work on standards for the quality of biomass fuels.
- Explore how to develop a European spot market in pellets and chips.

- Encourage Member States to establish national biomass action plans.

Encourage Member States and regions to ensure that the benefits of biomass are taken into account when preparing their national reference frameworks and operational plans under the cohesion policy and the rural development policy.

### Research

The Commission will:

- Continue to encourage the development of an industry-led “Biofuel technology platform”.
- Consider how best to take forward research into the optimisation of agricultural and woody crops for energy purposes, and biomass to energy conversion processes.
- Give a high priority to research into the “bio-refinery” concept, finding valuable uses for all parts of the plant.
- Give a high priority to research into second-generation biofuels, with an aim of improving their efficiency and cost-effectiveness; a substantial increase in Community funding is expected.

## **PRIEDAS 2 – EU biomass production potential**

The table assesses the EU's potential to produce biomass for energy use. These estimates are conservative because they are based on the following assumptions:

- no effect on domestic food production for domestic use;
- no increase in pressure on farmland and forest biodiversity;
- no increase in environmental pressure on soil and water resources;
- no ploughing of previously unploughed permanent grassland;
- a shift towards more environmentally friendly farming, with some areas set aside as ecological stepping stones;
- the rate of biomass extraction from forests adapted to local soil nutrient balance and erosion risks.

The first column of the table shows the quantities of EU-produced biomass used for energy purposes today. The following columns show the potential contribution in 2010, 2020 and 2030. The potential for 2010 is 2½ times the contribution today. The potential for 2020 is 3 to 3½ times the contribution today, and the potential for 2030 is 3½ to 4½ times that of today. Forests, wastes and agriculture all make a big contribution to this potential for growth. The increase from forestry comes from an increase both in fellings and in the use of residues. The increase from agriculture is driven by the reform of the common agricultural policy.

### **EU biomass production potential<sup>42</sup>**

| <i>Mtoe</i>                                                                                      | <b>Biomass consumption, 2003</b> | <b>Potential, 2010</b> | <b>Potential, 2020</b> | <b>Potential, 2030</b> |
|--------------------------------------------------------------------------------------------------|----------------------------------|------------------------|------------------------|------------------------|
| <b>Wood direct from forest (increment and residues)</b>                                          | 67 <sup>43</sup>                 | 43                     | 39-45                  | 39-72                  |
| <b>Organic wastes, wood industry residues, agricultural and food processing residues, manure</b> |                                  | 100                    | 100                    | 102                    |
| <b>Energy crops from agriculture</b>                                                             | 2                                | 43-46                  | 76-94                  | 102-142                |
| <b>TOTAL</b>                                                                                     | <b>69</b>                        | <b>186-189</b>         | <b>215-239</b>         | <b>243-316</b>         |

<sup>42</sup> Sources: 2003 data from Eurostat; projections for 2010, 2020 and 2030 from European Environmental Agency, "How much biomass can Europe use without harming the environment", briefing 2/2005

<sup>43</sup> This figure includes 59 Mtoe of wood and wood wastes; 3 Mtoe of biogas; and 5 Mtoe of municipal solid waste.

It should be underlined that due to lack of data, this table only covers the EU25. It does not include the contribution of Bulgaria and Romania. These countries will be EU members by 2010, and have high biomass production potential. Nor does the table include imports. Most regions of the world have higher potential to produce biomass, relative to their energy consumption, than the EU. Potential EU consumption is therefore significantly higher than these figures would suggest.

**PRIEDAS 3 – A scenario to increase biomass energy using current technologies**

| <i>mtoe</i>        | <b>Current (2003)</b> | <b>Future (2010)</b> | <b>Difference</b> |
|--------------------|-----------------------|----------------------|-------------------|
| <b>Electricity</b> | 20                    | 55                   | 35                |
| <b>Heat</b>        | 48                    | 75                   | 27                |
| <b>Transport</b>   | 1                     | 19                   | 18                |
| <b>TOTAL</b>       | 69                    | 149                  | 80                |

This scenario is drawn from the 2004 communication “The share of renewable energy”, expanded to the EU25. It is compatible with achievement of the Community’s targets of: a 12% overall share of renewable energy; a 21% share of renewable energy in electricity generation; and a 5.75% market share for biofuels.

The Commission believes this scenario can be achieved in the three sectors sectors – electricity, heat and transport – through the measures in this action plan – if not in 2010, the year for which these targets were set, then within a year or two of that date.

This is the scenario that serves as the basis for the impact assessment on this communication.

## **PRIEDAS 4 – Environmental impacts**

Biomass has three main environmental impacts:

- **Avoidance of greenhouse gas emissions**

The Commission estimates that the scenario in Annex 3, if achieved, would reduce greenhouse gas emissions by 209 million tonnes of CO<sub>2</sub>-eq per year.

- **Environmental impact of the production of raw materials**

Agriculture can have significant effects on the environment, positive and negative. In general, the level of harmful effects varies with the intensity of the agriculture. This is true whether crops are used for food or energy purposes. It can be particularly harmful to bring previously uncultivated land (permanent grassland) into agricultural use.

On the other hand, using grass cuttings from such land for biomass production can help to prevent the decline of biodiversity on species-rich grasslands due to land abandonment.

Energy crop cultivation can help to improve the overall profitability of the farm business, contributing to the maintenance of farming in areas where this may be useful from an environmental (or wider sustainable development) perspective. This is important in a number of regions to improve soil stability and prevent irreversible landslide damage. Another potential positive aspect of energy crop production is its contribution to the establishment of new crop rotation systems that are more advantageous from a wider environmental point of view (for example, alternatives to the monoculture of maize).

If energy crops are grown on agricultural land that was previously used for food production, the change in environmental pressure depends on which biomass crops are cultivated.

The plantation of tree crops to enhance soil cover on degraded land can also have a globally positive impact. However this should not take place on steppe or mountain habitats that have a high biodiversity value.

The use of wastes and residues for energy purposes often gives an environmental bonus compared with other means of disposal. For forest residues, the environmental impact depends on the local soil nutrient balance and the risk of erosion, which may require a certain amount of the residues (especially foliage) to be left on site. In some regions, however, their extraction help to reduce the risk of fire.

- **Environmental impact of the use of biomass**

Like fossil fuels, biomass emits pollutants. Advanced emission control equipment can virtually eliminate this, however. Such equipment is already standard in transport and, increasingly, in electricity generation. The situation is less favourable with heating, particularly home heating.

This analysis points to two priorities:

- the need to guarantee that site-specific environmental requirements are observed when producing biomass – this will be addressed in the Commission's 2006 report on the implementation of the biofuels directive
- improving the pollution performance of household biomass burning – this will be addressed as part of the measures proposed in this action plan to develop biomass heating.

The Commission will also take steps to improve understanding of the costs and environmental impacts of all transport fuels, including conventional biofuels.

## **PRIEDAS 5 – Renewable energy and the directive on the energy performance of buildings**

The directive on the energy performance of buildings<sup>44</sup> requires Member States, when calculating the energy performance of buildings, to take into account the positive influence of "heating and electricity systems based on renewable energy sources". The relative importance attached to different kinds of renewable energy will be decided by the Member States in their transposition of the directive, allowing them, in principle, to attach substantial premia to the use of biomass in their calculation methods.

Moreover, for new buildings larger than 1000 square meters, Member States are required to carry out technical, environmental and economic feasibility studies on the use of decentralised energy supply systems based on renewable energy, on CHP and on district or block heating or cooling. This also gives Member States considerable leeway to promote biomass. In many Member States, biomass heating is one of the most practical and cost-effective options.

During 2006, taking into account comments received on the energy efficiency Green Paper<sup>45</sup>, the Commission will decide how it thinks the directive should be further developed. The possibilities it will consider could include:

- amending the annex to the directive to ensure that calculation procedures allow greater weight and more active promotion to be given to biomass heating and other forms of renewable energy;
- reducing the thresholds in the directive so that many more new buildings would have to be considered for renewable energy before construction starts, and many more renovation projects would need to meet minimum efficiency requirements based on energy performance calculations that include the positive influence of renewable energy sources, including biomass;
- setting EU-wide minimum energy performance standards and criteria that could also promote the use of biomass where it is technically feasible and economically interesting.

At the same time, the Commission will examine other options for development of the directive, including *inter alia* the use of energy-efficient building materials.

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<sup>44</sup> Directive 2002/91 of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings, O.J. L1, 4/01/2003

<sup>45</sup> COM(2005)265 final of 22/06/2005



## **PRIEDAS 6 – Biomass for electricity generation**

Electricity can be generated from all types of biomass. Several reliable technologies are available. These technologies can be used to “co-fire” biomass, by mixing it with coal or natural gas, or to run freestanding power stations.

Large centralised power plants, like those used to burn straw in Denmark or forest residues in Finland, offer the best economic performance, especially if they are also used for heat (combined heat and power, CHP). Co-firing biomass with coal is another good centralised option in existing large power plants.

It is more efficient, when electricity is generated from biomass, to make use of the heat that is produced as well. Member States can support this in the design of support schemes for electricity generated from renewable energy sources, or through CHP support schemes developed in accordance with the harmonised European efficiency reference values for CHP which will come into force in February 2006 in accordance with the CHP directive<sup>46</sup>.

Smaller decentralised plants burning solid biomass or biogas tend to cost more, but often have advantages for the environment and for rural development. The EU structural funds or its rural development programme can be used to study their optimal location in relation to biomass availability, transport infrastructure, grid connection possible and labour markets.

The Commission encourages Member States to harness the potential of all cost-effective forms of biomass electricity generation rather than focusing on one form alone.

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<sup>46</sup> Directive 2004/8 of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC, O.J. L52, 21/02/2004

## **PRIEDAS 7 – Transport biofuels: background**

In 2001 the Commission adopted a communication on alternative fuels for road transport, identifying three fuels (biofuels, natural gas and hydrogen) that could play a big part<sup>47</sup>. It was accompanied by legislative proposals requiring Member States to promote biofuels and making it easier to use fuel tax exemptions to do this. These proposals were adopted, in amended form, in 2003<sup>48</sup>.

Since the adoption of the communication the market share of biofuels has increased from 0.2% in 2000 to 0.8% in 2004. About 90% of biofuel consumption is covered by domestic raw materials, 10% by imports. Out of the EU25's total arable land of 97 million hectares, about 1.8 million hectares were used for producing raw materials for biofuels in 2005. As expected, there has been a shift towards low blends and away from the high blends or pure biofuels that prevailed in 2001. Biodiesel's share of total biofuel consumption has stayed at 70 to 80%.

The rise in the oil price and a growing interest in new markets for agricultural products in the light of the reform of the common agricultural policy - and the sugar regime in particular - have led to a wider appreciation of biofuels' advantages at European level and have provoked widespread discussion in Member States.

“Second-generation” biofuels from wood and wastes are currently more expensive than first-generation biofuels from agricultural crops and have not yet been fully demonstrated on a commercial scale. Once that has been achieved, they will widen the range of raw materials that can be used and could also further improve biofuels' environmental profile. It should be underlined, however, that first-generation biofuels already offer significant benefits and that any significant contribution from second-generation biofuels will not materialise until after 2010. Therefore, the emphasis of this action plan is on first-generation biofuels.

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<sup>47</sup> COM (2001) 547

<sup>48</sup> Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport, O.J. L123, 17/05/2003, and Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity, O.J. L283, 31/10/2003

### **PRIEDAS 8 – Biofuels: progress at national level**

| <b>Member State</b> | <b>Market share 2003</b> | <b>National indicative target for 2005</b> | <b>Targeted increase, 2003-2005</b>                               |
|---------------------|--------------------------|--------------------------------------------|-------------------------------------------------------------------|
| AT                  | 0.06%                    | 2.5%                                       | +2.44%                                                            |
| BE                  | 0                        | 2%                                         | +2%                                                               |
| CY                  | 0                        | 1%                                         | +1%                                                               |
| CZ                  | 1.12%                    | 3.7% (2006)                                | + 1.72% (assuming linear path)                                    |
| DK                  | 0                        | 0%                                         | +0%                                                               |
| EE                  | 0                        | 2%                                         | +2%                                                               |
| FI                  | 0.1%                     | 0.1%                                       | +0%                                                               |
| FR                  | 0.68%                    | 2%                                         | +1.32%                                                            |
| DE                  | 1.18%                    | 2%                                         | +0.82%                                                            |
| GR                  | 0                        | 0.7%                                       | +0.7%                                                             |
| HU                  | 0                        | 0.4-0.6%                                   | +0.4-0.6%                                                         |
| IE                  | 0                        | 0.06%                                      | +0.06%                                                            |
| IT                  | 0.5%                     | 1%                                         | +0,5%                                                             |
| LA                  | 0.21%                    | 2%                                         | +1.79%                                                            |
| LI                  | 0 (assumed)              | 2%                                         | +2%                                                               |
| LU                  | 0 (assumed)              | not yet reported, assume 0                 | not yet reported                                                  |
| MT                  | 0.02%                    | 0.3%                                       | +0.28%                                                            |
| NL                  | 0.03%                    | 2% (2006)                                  | +0% (promotional measures will come into force from January 2006) |
| PL                  | 0.49%                    | 0.5%                                       | +0.01%                                                            |
| PT                  | 0                        | 2%                                         | +2%                                                               |
| SK                  | 0.14%                    | 2%                                         | +1.86%                                                            |
| SI                  | 0 (assumed)              | 0.65%                                      | +0.65%                                                            |
| ES                  | 0.76%                    | 2%                                         | +1.24%                                                            |
| SV                  | 1.32%                    | 3%                                         | +1.68%                                                            |
| UK                  | 0.03%                    | 0.3%                                       | +0.27%                                                            |
| <b>EU25</b>         | <b>0.6%</b>              | <b>1.4%</b>                                | <b>+0.8%</b>                                                      |

#### *Sources*

**2003:** National reports under the biofuels directive except Belgium: Eurostat (figure for 2002) and Italy: EurObserv'Er

**2005:** National reports under the biofuels directive.

National reports under the biofuels directive are available at [http://europa.eu.int/comm/energy/res/legislation/biofuels\\_en.htm](http://europa.eu.int/comm/energy/res/legislation/biofuels_en.htm)

## **PRIEDAS 9 – Implementing the biofuels directive: fuel tax exemptions and biofuel obligations**

Member States are using two main tools to implement the Biofuels Directive: tax exemptions and biofuels obligations.

### **Tax exemptions**

Member States make a good deal of use of fiscal policy to promote biofuels. The energy taxation directive establishes the framework for the consequent tax exemptions.

Under Article 16 of this directive, Member States can reduce taxes on biofuels or completely exempt them from taxes, without needing the Commission's prior approval (on fiscal grounds), as long as they respect certain strict conditions.

The tax reduction or exemption cannot exceed the amount of tax which would otherwise be payable on the volume of biofuel present in the product that is eligible for the reduction. In addition, it should be emphasised that the tax reductions or exemptions introduced by Member States must be modified in line with changes in the price of raw materials, in order to ensure that the reductions do not lead to overcompensation of the additional costs of biofuel production. The fiscal advantage (exemption or reduction) granted to a fuel of renewable origin cannot exceed the difference between this fuel and an equivalent fossil fuel.

These fiscal measures no longer need the prior, unanimous approval of other Member States. However, they remain subject to state aid control. The Commission has taken a generally favourable attitude to the notifications received. The exemptions that have received state aid approval are listed in the table.

*Table - Biofuel tax exemptions that have received state aid approval*

| <b>Case</b> | <b>Biofuels concerned</b>                      | <b>reference</b>          |
|-------------|------------------------------------------------|---------------------------|
| C64/2000 FR | ETBE                                           | OJ L 94 of 10.4.03, p.1   |
| N461/01 IT  | Biodiesel                                      | OJ C 146 of 19.6.02, p.6  |
| N480/02 SE  | All CO <sub>2</sub> -neutral fuels             | OJ C 33 of 6.2.2004, p.7  |
| N804/01 UK  | Biodiesel                                      | OJ C 238 of 3.10.02, p.10 |
| N512/02 SE  | Biofuel pilot projects                         | OJ C 75 of 27.3.03, p.2   |
| N685/02 DE  | Bioethanol, biodiesel and vegetable oils       | OJ C 86 of 6.4.04, p.15   |
| N717/02 IT  | Bioethanol and ETBE                            | OJ C 16 of 22.1.04, p.22  |
| N407/03 UK  | Bioethanol                                     | OJ C 193 of 28.4.05, p.17 |
| NN43/04 AT  | Bioethanol, biodiesel and vegetable oils       | Not published yet         |
| N187/04 SE  | Biofuel pilot projects                         | Not published yet         |
| N206/04 CZ  | Biodiesel                                      | Not published yet         |
| N427/04 HU  | Biodiesel and ETBE                             | OJ C133 of 31.5.05, p.2   |
| N582/04 IT  | Biodiesel (prolongation of N461/01)            | Not published yet         |
| N599/04 IRL | Biodiesel, bioethanol and vegetable oils       | OJ C 98 of 22.4.05, p.10  |
| N44/05 LT   | Biodiesel, bioethanol, vegetable oils and ETBE | Not published yet         |
| N223/05 CZ  | Biodiesel                                      | Not published yet         |
| N314/05 EE  | Bioethanol, biodiesel and vegetable oils       | Not published yet         |

*All decisions not to raise objections can be found on the Commission's website:  
[http://europa.eu.int/comm/secretariat\\_general/sgb/droit\\_com/index\\_en.htm#aides](http://europa.eu.int/comm/secretariat_general/sgb/droit_com/index_en.htm#aides)*

However, the Commission is aware that the system of tax exemptions, as implemented, is giving rise to three problems:

- 1) The risk of **unnecessarily high cost to the state and unnecessarily high payments to undertakings**. Biofuels producers have different costs but, under the tax exemption system, all receive the same level of compensation. If the level of compensation is enough to bring high-cost producers into the market, there is a risk that it overcompensates lower-cost producers. The risk of overcompensation appears to be widespread, both within the Community and internationally. The services of the Commission are presently looking into several possibilities, including the limitation of detaxation to undenatured bioethanol (which is subject to the highest import duty) and/or making the rate of detaxation depend on the raw material used.
- 2) Insufficient **investor certainty**. The Energy Taxation Directive limits the duration of tax exemptions to six years. Among the schemes adopted to date, only the French scheme lasts as long as this. In general, Member States could consider taking coordinated measures to create a stable investment climate, in particular by making full use of the possibility under Community law to adopt six-year tax reliefs and to arrange for their extension well before the term has expired. However, stakeholder consultation has clarified that even this period of certainty is less than needed for some investments, particularly in second-generation biofuels but also in first-generation ethanol plants.
- 3) While some Member States use open aid schemes, available to all, others have opted for a **quota-based approach**, limiting the quantity of biofuel that will qualify for the tax exemption and setting up a process to choose the firms that will benefit from it. The Commission sees risks of non-transparency, arbitrary allocation and increased market concentration in quota-based schemes.

### Biofuels obligations

At present there is increasing interest among Member States in the use of **biofuel obligations**, requiring fuel supply companies to incorporate a given percentage of biofuels in the fuel they place on the national market or face a penalty<sup>49</sup>. Obligations are in force in France and Austria and will come into force in Slovenia in 2006 and in the Czech Republic and the Netherlands in 2007. The UK and Germany have recently said that they will introduce them. Schemes vary in relation to: the point in the distribution chain where the obligation is placed; whether individual types of biofuel are distinguished; how compliance is monitored; whether they are implemented through a system of tradable certificates; and whether they coexist with fuel tax exemptions.

Obligations have a number of advantages. They place responsibility for addressing the problem of excessive oil dependence on the sector where it originates – while implying only a negligible increase in the cost of fuel. They give fuel supply companies an incentive to push

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<sup>49</sup> Obligations that take this form are compatible with the Fuel Quality Directive (Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC (O.J. L350, 28/12/1998), as amended by Directive 2003/17/EC of the European Parliament and of the Council of 3 March 2003 (O.J. L76, 22/03/2003)). By contrast, an obligation to incorporate a given proportion of biofuel in each litre of fuel sold would not be compatible with the Directive..

down the cost of biofuels – and it follows that they are more cost-efficient. They can include a premium for second-generation biofuels. Unlike state aids, they are not subject to a time limit and so could be a good way to establish the stable framework that investors want.

#### Compatibility between obligations and exemptions

It is important to point out that Article 16.6 of the energy taxation directive states that if Community law requires Member States to comply with legally binding obligations requiring them to place a minimum proportion of biofuels, the option for Member States to reduce excise duties under fiscal control (that is, without needing specific authorisation from the Council under unanimity) would disappear.

## **PRIEDAS 10 – Trade in bioethanol**

### **1. Current trade in bioethanol**

There is currently no specific customs classification for bioethanol for biofuel production. This product is traded under code 22 07 which covers both denatured (CN 22 07 20) and undenatured alcohol (CN 22 07 10). Both denatured and undenatured alcohol can then be used for biofuel production. It is not possible to establish from trade data whether or not imported alcohol is used in the fuel ethanol sector in the EU.

An import duty of €19.2/hl is levied on undenatured alcohol, while an import duty of €10.2/hl applies to denatured alcohol.

**Table I**

| <b>Imports under code 2207 (in hl)</b> |                      |                    |                           |
|----------------------------------------|----------------------|--------------------|---------------------------|
|                                        | <b>Av. 1999-2001</b> | <b>Av. 2002-04</b> | <b>% of total (02-04)</b> |
| <b>Undenatured alcohol</b>             | 1 167 935            | 2 383 239          | 93%                       |
| <b>Denatured alcohol</b>               | 279 904              | 180 988            | 7%                        |
| <b>Total</b>                           | 1 447 839            | 2 564 226          | 100%                      |

Overall imports of alcohol under code 2207 averaged 2 564 226 hl over the 2002-04 period, up from 1 447 839 hl over 1999-2001. Over 93% of them came under code 22 07 10 (undenatured alcohol).

The principal trade trends are summarised in Table II:

**Table II**

| <b>Total imports of alcohol under code 22 07 (in hl) by type of duty</b> |             |             |             |                    |                   |
|--------------------------------------------------------------------------|-------------|-------------|-------------|--------------------|-------------------|
|                                                                          | <b>2002</b> | <b>2003</b> | <b>2004</b> | <b>Av. 2002-04</b> | <b>% of total</b> |
| <b>Reduced duty</b>                                                      | 227 285     | 182 940     | 288 364     | 232 863            | 9%                |
| <b>Duty-free</b>                                                         | 980 693     | 2 027 632   | 1 709 282   | 1 572 536          | 61%               |
| <b>MFN</b>                                                               | 657 011     | 494 771     | 1 124 699   | 758 827            | 30%               |
| <b>TOTAL</b>                                                             | 1 864 989   | 2 705 344   | 3 122 345   | 2 564 226          | 100%              |

- average imports of bioethanol increased by 77% over 2002-2004 compared to the previous three-year period (1999-2001) when they totalled 1 447 839 hl;
- over that period 70% of these imports were traded under preferential conditions, out of which almost 61% were duty-free, while 9% benefited from some type of duty reduction;
- 30% of EU trade under code 22 07 takes place under MFN (most favoured nation) conditions.

With respect to the largest exporting countries:

- a) over the 2002-2004 period, Pakistan was the largest duty-free exporter with an average of 501 745 hl followed, at a distance, by Guatemala with 223 782 hl;
- b) Brazil is the only country capable of exporting large quantities as MFN with an average of 649 640 hl over the same period, with the second MFN exporter, the USA, on only 20 109 hl;
- c) one country - Ukraine - accounts for the vast majority of imports at reduced duty with 107 711 hl over the 2002-04 period. Egypt came second with over 43 000 hl.

## 2. Preferential imports of bioethanol into the EU

The EU's preferential trade basically comes under two regimes: the Generalised System of Preferences (including, among others, the Everything But Arms (EBA) initiative) and the Cotonou Agreement. The main preferences accorded by each of them are summarised in Table III and described in detail in the following sections.

**Table III**

| <b>Import conditions under code 22 07 under EU's main preferential agreements</b> |                                         |                   |                                                                                                                                    |            |                |
|-----------------------------------------------------------------------------------|-----------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------|------------|----------------|
|                                                                                   | <b>GSP normal</b>                       |                   | <b>GSP+</b>                                                                                                                        | <b>EBA</b> | <b>Cotonou</b> |
| <b>Duty reduction</b>                                                             | 15% up to 31.12.2005                    | 0% as of 1.1.2006 | 100%                                                                                                                               | 100%       | 100%           |
| <b>Quantitative restrictions</b>                                                  | NO                                      |                   | NO                                                                                                                                 | NO         | NO             |
| <b>Beneficiaries</b>                                                              | All GSP beneficiaries if not graduated. |                   | Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Panama, Peru, El Salvador, Venezuela, Georgia, Sri Lanka and Mongolia | LDCs       | ACPs           |

### 2.1. GSP

The current Council Regulation (Regulation (EC) 2501/2001), in force until 31 December 2005, classifies denatured and undenatured alcohol under code 22 07 as a sensitive product. According to article 7.4 of the regulation, imports of this alcohol from all GSP beneficiary countries qualify for a 15% reduction of the MFN duty<sup>50</sup>.

Under the special drugs regime envisaged by Council Regulation (EC) 2501/2001, which was in force from the early nineties until repealed on - 30 June 2005, exports from a number of countries (Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Nicaragua, Panama, Peru, Pakistan, El Salvador and Venezuela) qualified for duty-free access under code 22 07.

<sup>50</sup> Article 7(4) of Council Regulation (EC) No 2501/2001 of 10.12.2001.



The new GSP Regulation (Council Regulation (EC) No 980/2005 of 27.06.2005), which will apply from 1 January 2006 to 31 December 2008, no longer envisages any tariff reduction for either denatured or undenatured alcohol under code 22 07 (still classified as a sensitive product). This Regulation put in place a special incentive arrangement for sustainable development and good governance (the new GSP + incentive scheme) which has been applying on a provisional basis since 1 July 2005 and will apply on a permanent basis from 1 January 2006 to 31 December 2008. This new incentive arrangement grants unlimited and duty free access (suspension of Common Customs Tariff duties) to denatured or undenatured alcohol under code 2207. It includes all the countries which already benefited from the previous drugs scheme, with the exception of Pakistan which is subject to the full MFN duty.

The new incentive arrangement now also includes Georgia, Sri Lanka and Mongolia, which have not so far exported bioethanol to the EU.

Moreover, a special arrangement for least developed countries (the EBA initiative) provided for by the new GSP Regulation offers an unlimited duty-free access to denatured or undenatured alcohol under code 2207.

## 2.2. Cotonou Agreement

Under the Cotonou Agreement, ACP countries qualify for duty-free access for denatured and undenatured alcohol under code 22 07 with the sole exception of South Africa. According to Regulation (EC) 2501/2001, South Africa enjoys a 15% reduction in customs duties. From 1 January 2006 it will therefore have to pay full MFN duty. During the ongoing European Partnership Agreement (EPA) negotiations with ACP countries, the customs duties of alcohol under code 22 07 will need to be negotiated.

## 2.3. Other countries with preferential arrangements

Egypt currently has unlimited duty-free access to the EU under the Euro-Mediterranean Agreement. Before that, it qualified for a 15% reduction under the GSP scheme.

Norway, which ranks among the top ten exporters with a total of 89 375 hl under code 22 07 in 2004, has been granted duty-free access to the EU within the framework of tariff rate quotas (TRQs) since the mid-nineties. In 2005 the TRQ will total 164 000 hl for exports under code 22 07 10 (up from 134 000 hl the previous year) and 14 340 hl under code 22 07 20, up from 3 340 hl.

## 3. Trade analysis

Table IV sums up trade under the various preferential arrangements.

Table IV

| Imports under preferential conditions 2002 – 2004 (in hl) |         |         |         |             |                          |
|-----------------------------------------------------------|---------|---------|---------|-------------|--------------------------|
|                                                           | 2002    | 2003    | 2004    | Av. 2002-04 | % of total trade 2002-04 |
| <b>GSP normal</b>                                         | 227 285 | 182 940 | 288 364 | 232 863     | 9%                       |

|                           |           |           |           |           |       |
|---------------------------|-----------|-----------|-----------|-----------|-------|
| <b>GSP +</b>              | 553 156   | 1 569 005 | 1 412 896 | 1 178 352 | 47.5% |
| <b>ACP</b>                | 291 055   | 268 784   | 154 663   | 238 167   | 9%    |
| <b>EBA</b>                | 30 018    | 86 247    | 18 956    | 45 074    | 1.5%  |
| <b>Others</b>             | 106 464   | 103 597   | 122 768   | 110 943   | 4%    |
| <b>Total preferential</b> | 1 207 978 | 2 210 573 | 1 997 646 | 1 805 399 | 70%   |
| <b>Total MFN</b>          | 657 011   | 494 771   | 1 124 699 | 758 827   | 30%   |
| <b>Grand total</b>        | 1 864 989 | 2 705 344 | 3 122 345 | 2 564 226 | 100%  |

### 3.1. GSP

Trade data for 2001–2004 show a dramatic increase in bioethanol exports from the countries benefiting from the special drugs regime in previous years. Although these countries have benefited from the same regime since the 1990s, the unlimited duty-free access enjoyed under it at a moment of rising demand for alcohol under code 22 07 can be considered the single most important factor underlying the doubling of bioethanol exports from these countries to the EU. All major exporters under code 22 07 over the last three years benefit from such a scheme: Pakistan, Guatemala, Peru, Bolivia, Ecuador, Nicaragua and Panama.

Altogether, exports of ethanol from the GSP plus beneficiaries totalled 1 412 896 hl in 2004: practically all duty-free exports to the EU and 46% of all exports under code 22 07 to the EU over the 2002-2004 period.

Thanks to its lower production costs, Pakistan took a big lead over the other GSP beneficiaries with 1 008 656 hl in 2004 (the second largest exporter in the world) followed, at a distance, by Guatemala with over 250 000 hl.

Under the new GSP an exclusion of Pakistan from the list of countries having unlimited duty-free access to the EU market, will remove from the market one of the most aggressive and competitive producers. All old direct competitors under the GSP drugs regime will continue to enjoy duty-free access to the EU market and might be expected to fill the gap left by Pakistan as they have relatively low production costs too.

Nevertheless, at US\$14.52/hl, Pakistan has production costs closer to Brazil's which, with production costs of US\$13.55/hl, manages to export substantial quantities to the EU paying the full MFN duty. Pakistan might therefore be expected to continue to be able to export significant quantities of ethanol to the EU, albeit not at the same pace as before, thus utilising the increased production capacity built over the last couple of years.

By contrast, the 15% reduction offered by the normal GSP regime opened access for approximately 9% of exports of the same product to the EU market. Unlike the obvious favourable impact of the GSP drugs regime, the impact of the 15% duty reduction is more difficult to assess. The two largest exporting countries benefiting from such a reduction are Ukraine and South Africa. In the case of Ukraine, the introduction of the 15% reduction coincided with a dramatic increase in exports over the 2002-2004 period. For South Africa, on the other hand, the last two years showed

exports stable on approximately 50 000 hl, with a dramatic decrease over the 2000-2001 period. Under these conditions, it is difficult to predict the impact of removal of the 15% import duty reduction although it seems fair to say that even such a small reduction seemed to provide a competitive advantage over the countries paying full duty.

### **3.2. EBA**

So far, exports of bioethanol from countries benefiting from the special arrangement for the least developed countries (the EBA initiative) under the GSP (EC) Regulation 980/2005 to the EU have been negligible and have primarily come from one country - the Democratic Republic of Congo - which already qualified for duty-free access as an ACP country. At the moment, the Democratic Republic of Congo is the only LDC with sizeable, though erratic, exports of alcohol to the EU under code 22 07 since 1999. In 2004 exports totalled 18 956 hl after peaking at 86 246 hl the year before.

It is fair to recognise, however, that EBA dates back to only 2001 and that some of the countries which did not have duty-free access under other earlier regimes (notably Bangladesh, Laos, Cambodia, Afghanistan and Nepal) might find new ways of access to the EU in the medium or longer term.

New opportunities might emerge in these countries - which generally do not produce (or are not very competitive at producing) sugar cane or any other raw material for bioethanol production from their own resources – in the form of processing molasses imported from their competitive, sugar-producing neighbours. This might be the case with Cambodia which could use raw material from Thailand, or with Bangladesh and Nepal which might process raw material from India. At the moment it is difficult to quantify future potential production from these countries but investments are known to have been made in some of them, like Bangladesh.

In this respect it is important to stress that under Council Regulation (EC) 2501/2001, imports are subject to the GSP rules of origin plus regional cumulation. The Commission is currently examining a proposal for a new regulation which would introduce the principle of determination of the preferential rules of origin based on the value-added method. Distillation should continue to be considered an operation with sufficient added value to confer origin on the finished product.

### **3.3. Cotonou Agreement**

- On the whole, ACP exports to the EU under code 22 07 have so far been limited. Over the last couple of years they have, however, been fairly stable at 238 167 hl despite a low of 154 663 hl in 2004 (excluding South Africa: 48 728 hl).
- Swaziland and Zimbabwe are by far the leading exporters with an average of 85 562 hl and 120 261 hl respectively over the 2002-04 period. A number of ACP countries are likely to consider bioethanol production as an alternative to sugar production as part of the restructuring resulting from the EU sugar reform. However, bioethanol production from sugar cane might remain relatively low and limited only to countries where sugar production is competitive, such as Swaziland and Zimbabwe, which have production costs close to Brazil's and India's and which are already exporting substantial quantities to the EU under code 22 07.

## **PRIEDAS 11 – Achieving the 5.75% biofuels target: the balance between domestic production and imports**

One of the key variables in biofuel policy is the balance between domestic production and imports. Biofuels and their raw materials are traded on world markets. An autarkic approach to meeting the EU's needs is neither possible nor desirable. But the Union still has a degree of discretion about how far to encourage domestic production and/or imports. The purpose of this annex is to set out the facts and assess the pros and cons of different options.

### **Tools for shifting the balance between domestic production and imports**

The starting point is to understand the tools that can be used to shift the balance between domestic production and imports.

In the case of **bioethanol**, the main tool for shifting the balance is the duty paid. EU-produced bioethanol can be expected to cost about €900/toe by 2010 (costs are currently higher because most production plants are rather small). The cheapest imported bioethanol (from Brazil) can be bought in Europe at around €680/toe. Bioethanol imports are subject to duties ranging from zero (for imports from certain countries and/or under certain conditions) to about €376/toe (for undenatured ethanol imported at the maximum tariff). Consequently, imported bioethanol is cheaper than European if no import duty is paid, and more expensive if the maximum tariff is paid. If all tariffs on bioethanol were removed, it would be difficult for domestic producers to stay in the market.

In Germany, only fuel containing undenatured ethanol is eligible for fuel tax exemption. Even imported bioethanol needs the exemption in order to be price-competitive with petrol (currently around €457/toe<sup>51</sup>).

More details on trade arrangements affecting bioethanol are given in Annex 10.

Imports of **biodiesel** or of the vegetable oils used to make it are subject to low or zero tariffs.

Biodiesel can be made from most types of vegetable oil, notably rape oil, soya oil and palm oil.

EU rape oil competes at the world market price. Imported soya oil and palm oil are cheaper. However, biodiesel made predominantly from one or another of these oils does not comply with the "biodiesel" or "FAME" standard, EN14214 – and it needs to comply with this standard if it is to be sold for use in unadapted vehicles. Biodiesel made predominantly from rape oil does comply with the standard, even if blended with a small amount – around 25% – of one of the other oils.

The Commission believes that the limits in standard EN14214 could be adapted to allow a higher proportion of other oils – perhaps 50% – to be used in biodiesel.

### **Scenarios for assessment**

Three theoretical models must be assessed:

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<sup>51</sup> Assuming oil at \$60/barrel and the € at \$1.25.

- 1) Minimum share for imports;
- 2) Maximum share for imports;
- 3) Balanced approach.

#### Scenario 1: Minimum share for imports

The first point to assess is the technical feasibility of this option and, in particular, whether sufficient land is available to produce the necessary crops.

The Commission estimates that in order to meet the biofuel directive's objective of a 5.75% share of the petrol and diesel market in 2010, 18.6 mtoe of biofuels will be needed. Most domestic biofuel production will come from three crops: sugarbeet and cereals (for bioethanol, replacing petrol) and rape (for biodiesel, replacing diesel). Average biofuel yields per hectare vary widely, depending on the characteristics of the crops, the soil and the climate. The following averages have been assumed:

|           |            |
|-----------|------------|
| Sugarbeet | 2.9 toe/ha |
| Cereals   | 0.9 toe/ha |
| Rape      | 1.1 toe/ha |

On the basis of this it can be estimated that about 17 million hectares of EU agricultural land would be needed to meet the directive's objective entirely from domestic production.

This can be compared with total EU arable land of 97 million hectares.

In the present context where crop production per hectare is rising steadily and the reform of the sugar regime will release resources currently used for food production, this appears to be technically feasible in principle. The Union is technically capable of meeting its biofuels targets for 2010 from domestic production, although it should be noted that there are agronomic limits on the cultivation of individual crops (e.g. the frequency with which rape can be included in crop rotation cycles)..

However, it should be pointed out that: existing trade arrangements and World Trade Organisation commitments do not permit the EU to close the door to imports of biofuels and biofuel raw materials; these materials are already being imported today; and there is no proposal to increase tariff protection for these goods. Therefore, the scenario of 100% domestic production is a theoretical one and would not be possible in practice.

Even interpreted as "minimum imports" rather than "no imports", this scenario would have two disadvantages.

First, it would expose the EU food and biofuels sectors to excessive increases in the price of raw materials. By creating a new market that could be served only by domestically produced crops, the biofuels policy would drive up their prices, particularly for cereals and rape which are currently traded at world market prices.

Second, it would do nothing to encourage the production of biofuels elsewhere in the world where the creation of new biofuels industries – partly serving foreign customers like the EU, partly domestic needs – can bring benefits to developing countries. In addition, to the extent

that increased consumption of biofuels is a tool to exercise downward pressure on the oil price, this is a global phenomenon – and the EU therefore has an interest in promoting biofuel production globally.

#### Scenario 2: Maximum share for imports

By encouraging amendment of the biodiesel standard, the EU would ensure that the maximum proportion of its biodiesel consumption is met from imports. The Commission believes that, with an appropriate amendment, imported vegetable oils would capture about 50% of the biodiesel market. However, much of the processing is likely to continue to take place in the Union.

By removing all tariffs on bioethanol, the EU would ensure that the maximum share of its bioethanol consumption is met from imports. The Commission believes that bioethanol made from agricultural crops in Europe will not be able to compete on price with bioethanol made from sugar cane from tropical countries. Therefore, the result of this policy would be that 100% of EU bioethanol consumption would be covered by imports. There would be no domestic bioethanol industry.

On the hypothesis that 56% of biofuel consumption will be biodiesel (in line with diesel's current share of the petrol and diesel market), these steps would lead to imported biofuels (or their raw materials) taking about 70% of the EU biofuel market.

For biodiesel, this approach has merit. It would enable both EU producers and developing countries to benefit, in a balanced way, from the growth of biofuel consumption in the EU. It is an appropriate response to the limits on expansion of rape production in the EU. An EU industry would continue to exist.

But this strategy would not address the serious concerns that the present expansion of vegetable oil production – such as palm oil and soya – in developing countries could be responsible for destruction of natural habitats and deforestation and that increased demand from the EU could translate into an increased rate of deforestation. If this is true, it would be an important factor to set against the greenhouse gas emission reductions that the increased use of biofuels would deliver. If such doubts cannot be removed, public support for biofuels will be undermined. Therefore, it would be wrong to maximise the import of biofuels/raw materials for biofuels without paying attention to the environmental impact of their cultivation.

For bioethanol, this is not a good approach for the EU to follow. If the EU obtains its bioethanol from imports rather than domestic production, the cost will be about 25% lower and the global greenhouse gas benefits will be greater. However, there will be no rural development benefits for Europe. And the security of supply benefits will be less, because Europe will not have the advantage of developing a new domestic fuel source. From a practical point of view, it must be remembered that implementation of the Union's biofuel policy depends on the efforts of Member States. If there is no prospect of domestic involvement in the production of bioethanol, it is likely that many of them will focus their efforts on biodiesel instead – eroding the market into which developing countries hope to sell. Finally, if the least developed countries are not able to compete on price on the world sugar market, there is no reason to believe that they will be able to do so on the world bioethanol market if trade is made completely free.

Environmental concerns are also raised about the cultivation of sugar cane for bioethanol. Against this, it is argued that most bioethanol comes and will continue to come from land that has been under cultivation for a long time.

### Scenario 3 –Balanced approach

The Commission believes that an intermediate approach would avoid the disadvantages of the first two options.

This approach should have five elements:

- i) Amendment of standard EN14214 to facilitate the use of a wider range of vegetable oils for biodiesel, to the extent feasible without significant ill effects on fuel performance;
- ii) Maintain market access conditions for imported bioethanol that are no less favourable than those provided by trade agreements currently in force;<sup>52</sup>
- iii) Pursue a balanced approach in ongoing free trade agreement negotiations with ethanol-producing countries/regions. The EU must respect the interests of domestic producers and EU trading partners, within the context of rising demand for biofuels;<sup>53</sup>
- iv) Address the issue of amending the biofuels directive so that only biofuels whose cultivation complies with minimum sustainability standards count towards its targets;
- v) Support developing countries in the production of biofuels.

The system of certificates would need to apply in a non-discriminatory way to domestically produced biofuels and imports. In particular, it would need to be non-discriminatory in relation to the requirements of the World Trade Organisation. It would need to be developed in line with other initiatives for certification of agricultural and forestry produce and could require EU support in its introduction. The potential impact on developing countries would be taken into consideration before any system of certification is introduced.

The Commission estimates that under this approach:

- price increases for agricultural crops could be kept in an acceptable range;
- a sufficient share of the market for biodiesel raw materials, a majority of the market for biodiesel production, and a majority of the market for bioethanol would remain domestic;
- least-developed countries, including those for whom the reform of the EU sugar regime is a particular challenge and whose bioethanol is not subject to tariffs, would gain a share of the EU biofuel market;

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<sup>52</sup> In particular, under the Everything But Arms, Generalised System of Preferences (+) and Cotonou agreements, which presently provide free access to the EU for ethanol imports.

<sup>53</sup> Note: existing trade agreements, notably Everything But Arms (EBA), Generalised System of Preferences (GSP) + and Cotonou, which presently provide free access to the EU for ethanol exports, will maintain this level of access..

- the promotion of biofuels would not cause deforestation and habitat destruction.

### **Notes on the production of biofuels in developing countries**

Support for developing countries in the production of biofuels is in the EU's interest both for development policy reasons and to maximise downward pressure on the oil price. It could contribute in specific countries, as in the EU but often in more critical situations, to greater energy security and access to energy, improved foreign exchange and trade balances, economic development and employment in rural regions, and environmental benefits. To the extent that the development of biofuel consumption will exert downward pressure on the global oil price, consumption in developing countries will contribute in the same way that European consumption does. EU development policy, as well as other EU policies such as research and energy and the clean development mechanism under the Kyoto Protocol, offers a number of instruments that can be used.

The positive and negative impacts of cash crops for biofuels on food production and food security have been the subject of extensive discussion. The costs and benefits depend on the site, the way the crop is produced and how it is integrated in the local production system. There is no general rule. Sugar cane has almost always been cultivated as a cash crop in developing countries, and a switch in the end-product from sugar to ethanol should not affect the food supply of the region. Some biofuel raw materials like jatropha could allow the sustainable use of low-value land and, in the process, contribute (via earnings) to an improvement in food security.



## **PRIEDAS 12 – The Commission’s perspective on biomass and biofuel research**

### **1. Introduction**

Research, technological development and demonstration have potential to support the use of biomass. The Commission intends to capitalise on this. Its proposal for the Seventh Framework Programme – Specific Programmes, adopted in September 2005, gives a high priority to biomass.

An industry-led European biofuel technology platform is under development<sup>54</sup>. This is intended to develop and implement a European vision and strategy for the production of biofuels, in particular for transport. Once the technology platform is established, the EC will explore the need to propose a possible joint technology initiative in this area<sup>55</sup>.

Other technology platforms will also play an important role – for example, those dealing with “Industrial biotechnology”, “Plants for the future”, “Road transport” and “Forest-based sectors”. Under the framework of the Seventh Framework Programme, there is a need for increased coverage of the following topics: biomass availability and logistics ; energy crops for the production of biomass;<sup>56</sup> and combustion, gasification and pyrolysis of biomass covering co-firing, recovered fuels and combined heat and power.

This research and development activity under the Seventh RTD Framework Programme will be complemented by non-research action in the “Intelligent Energy – Europe” programme. The main focus here is to support soft measures and to remove non-technological barriers to the widespread market deployment of already demonstrated biomass and biofuel technologies.

### **2. Research priorities – biomass in general**

The following actions related to biomass, with their corresponding objectives, are included in the Seventh Framework Programme.

#### *- Biomass for electricity, heating and cooling*

The objective is to develop and demonstrate a portfolio of technologies for electricity, heating and cooling from biomass, including the biodegradable fraction of waste. This research aims at increasing overall conversion efficiency, achieving cost reductions, further reducing the environmental impact and optimising the technologies in different regional conditions. A broad range of research topics are considered including biomass availability and logistics; conversion technologies, such as combustion, co-firing and gasification; emission abatement; and land use.

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<sup>54</sup> Technology platforms are channels to involve industries in defining research priorities.

<sup>55</sup> Joint technology initiatives are a new way to create public-private partnerships at European level. They have their foundation in technology platforms. They may take the form of a joint undertaking.

<sup>56</sup> With emphasis on woody crops (short-rotation coppice, grasses and miscanthus); on new crop breeds and novel cropping systems optimised for non-food use; on improving the energy content of the agricultural crops used for first-generation biofuels; and on machines and techniques for planting, harvesting, storage, transport, pre-treatment and conversion into material that can be fed into conveyor systems.

The Commission will propose to the “Zero Emission Power Generation” technology platform that co-firing be included in its scope.

*- Smart energy networks*

To facilitate the transition to a more sustainable energy system, a wide-ranging R&D effort is required on the EU electricity and gas systems and networks. Research aims at effective integration of biomass installations into electricity grids and feeding biogas and synthetic natural gas into the natural gas grid.

*- Life sciences and biotechnology for sustainable non-food products and processes*

The objective is to strengthen the knowledge base and develop advanced technologies for terrestrial or marine biomass production for energy and industry. Biotechnology will be applied to improve the productivity, sustainability and composition of biomass raw materials and to develop new bio-processes.

The Commission also attaches high importance to the “biorefinery” concept to maximise the value derived from biomass feedstocks by making full use of their components. Biorefineries could be built up by adding further fractionation and conversion steps to current biomass processing facilities (sugar, grain, pulp mills, oil refineries, etc.) to obtain a broad range of products such as food, feed, sustainable polymers, chemicals, fuels, and heat and power. Improving the cost-efficiency of biofuels through the biorefinery concept will be an important element of the biofuel technology platform.

### **3. Second-generation biofuels: state of play**

Producing bioethanol from cellulose delivers a gasoline substitute which is identical to bioethanol produced from sugar or cereals. Synthetic enzymes provide the key to unlock the cellulose molecules and break them down into simpler substances, which are subsequently fermented to ethanol and purified (distilled) the same way as conventional bioethanol. It is hoped that energy balances and, hence, CO<sub>2</sub> emission reductions will be largely enhanced.

The first demonstration plant was taken in operation by Iogen (4 million litres per year in Canada) and this was followed by ETEK (150 thousand litres per year pilot plant in Sweden) which was supported by EU regional funds. A third facility is under construction by Abengoa (5 million litres per year in Spain) and this plant is supported by the Fifth Framework Programme. Enzymatic hydrolysis is expected to become competitive in the medium term due to the decreasing price of the enzymes and low cost of the raw material (such as straw or even wood); being one of the most critical parameters in the overall cost of the biofuel.

Second-generation biodiesel is chemically different from vegetable-oil-based biodiesel. Gasification of biomass (anything works, but the drier the better) produces a “synthesis gas” consisting mainly of carbon monoxide (CO) and hydrogen. Exposing this gas to a suitable catalyst converts it into hydrocarbons (Fischer Tropsch synthesis), which will subsequently be treated to deliver a mixture of gasoline, jet fuel and diesel. Because of the high price of jet fuel, the excellent quality of the diesel fraction and the low quality of the gasoline fraction (low octane number), the process is normally optimised towards the production of jet fuel/diesel.

The different steps in the process have all been demonstrated to work commercially for Fischer Tropsch synthesis gas derived from coal or natural gas. Optimisation still remains to be done on gasification of biomass from different raw materials and gas purification to synthesis gas quality. A large-scale pilot plant (15 000 t/year) is being constructed in Freiberg (Germany) by the company Choren. In addition, Choren and Shell are in the process of developing a full-size prototype commercial plant with a capacity of 200 000 t/year which optimistically, depending on the experience with the pilot plant, could be operational in 2009/10. In parallel to the experience to be gained from this “biomass-to-liquid” (BTL) process, a number of large-scale “gas-to-liquid” projects, several in Qatar, will deliver technology experience on the second stage (Fischer Tropsch) of the process in the years ahead.

Alternatively the synthesis gas can be converted to bio-dimethylether (DME), which can also be used to replace diesel in modified diesel engines. DME, a gaseous fuel under ambient conditions, can be of particular relevance in heavy-duty applications.

The advantage of second-generation biodiesel is partly that the basic treatment of the raw material (gasification) allows virtually any organic material to be used and partly that it delivers a premium-quality diesel fuel, whether to be used in its own right or as a blending component in petroleum-based diesel. Its CO<sub>2</sub> emission profile depends on whether the energy source for conversion is biomass only or whether an external energy source is used, and whether the biomass is a waste product (e.g. straw) or an energy crop. This also affects the cost. Here too, significant CO<sub>2</sub> gains and energy balance improvements are hoped for.

Hybrids between first- and second-generation biofuels are also in preparation. Fortum (Finland) is planning to expand its Porvoo refinery to use vegetable oil and animal fat as a raw material in a conventional hydrogenation process. This delivers the same high-quality diesel as BTL with lower investment, but higher raw material costs (close to conventional biodiesel).

#### **4. Research priorities - transport biofuels**

The main area of research is second-generation biofuels made from various biomass resources and wastes, e.g. bioethanol, biodiesel, DME. The technical feasibility of converting cellulose material (straw/wood) and organic wastes into bioethanol and biodiesel has been demonstrated. But costs need to be brought down and technology needs to be further developed and demonstrated for commercial-scale production (over 150 000 tonnes a year). If this can be done, second-generation biofuels should offer three major advantages:

- they will secure a higher market share for biofuels by allowing the use of a wider range of raw material;
- the cultivation process (if any) could be less environmentally intensive than for ordinary agricultural crops;
- this lower intensity will be reflected in lower greenhouse gas emissions from cultivation.

Second-generation biodiesel production has a fourth advantage: the fuel is of better quality than conventional diesel<sup>57</sup>.

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<sup>57</sup> The process can also be used to produce a (good) substitute for jet fuel or a (poor) substitute for petrol.

The price of these fuels will depend on technical developments and the price at which the raw material can be obtained. At this stage there is no reason to assume that they will be substantially cheaper than first-generation biofuels.

The Commission plans to substantially increase its support for the development of second-generation biofuels through its research budgets.

### **PRIEDAS 13 – Results of consultation**

This communication and the impact assessment published alongside it take into account the results of extensive consultations. These began with the Commission's analysis of the various policies affecting biomass and an extensive public consultation campaign using all possible means, such as a public questionnaire via the Internet, numerous meetings with stakeholders, and bilateral meetings with Member States that have developed national Biomass Action Plans and with biomass experts.

The main conclusion drawn from the consultations was that the Commission should push strongly on all fronts, at EU level and national level, in order to overcome the non-technical barriers facing biomass.

Several more specific conclusions can be drawn from the consultation process:

- Sufficient biomass resources are available in the Union to meet the needs for an additional 80 mtoe per year by 2010 without major effects on forest products industries and food production. Energy crops can make a significant contribution while providing a new market outlet for agriculture and contributing to rural development. Any shortfalls can be addressed by imports.
- There are competitive, reliable and efficient European technologies to convert biomass resources into energy vectors (electricity, heating or cooling and biofuels for transport). Nevertheless, RTD work on biomass (supported by appropriate national and EC funds) has to be intensified in order to meet new challenges.
- European (as well as international) solid and liquid biofuels markets are in their infancy and have to be developed further to commodity level. In order to develop them successfully, work on standards and norms has to be accelerated.
- Biomass is generally more expensive than comparable fossil fuel energy. However, in some areas (such as household heating by pellets and industrial CHP based on residues) biomass is already competitive.
- There is an urgent need to start a professionally managed campaign to inform European citizens more fully about the benefits of biomass. This information barrier, as well as the absence of more effective representation of biomass at all levels, is also due to the lack of a strong European biomass association with industrial involvement.
- The main problem that appears to be holding back the penetration of biomass on the energy markets is the lack of demand. The only way to increase demand is through appropriate policies implemented at national level.
- Biomass is the only renewable energy source that does not suffer from intermittency problems and can potentially provide energy for heat, power and transport from the same installation.
- Biomass in the form of solid, liquid or gaseous biofuels is the only renewable energy source that can directly replace solid, liquid and gaseous fossil fuels, either fully or in blends of various percentages, in which case often there is no need for equipment modifications.

- Biomass is the only renewable energy source that cannot be found free; it necessitates a long chain of activities such as planting, growing, harvesting, pre-treatment (storage and drying) and upgrading to a fuel and, finally, mechanical, thermochemical or biological conversion into an energy carrier (power, heat or biofuels for transport). Therefore, biofuels (with the exception of untreated municipal waste) always have an associated cost that has to be borne by the final user.
- Since land availability is limited there could come a point in the future when biomass for energy will have to compete with food, materials, bio-chemicals and carbon sinks. However, this point in time is beyond 2020, and if international trade in biomass fuels becomes effective could lie beyond 2050.
- Environmental concerns must also be addressed whenever biomass is grown for food, products or fuels. This has to be done by taking an overall systems approach and by comparisons with other alternatives and not in isolation.