



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Policies for Advanced (Bio-)Fuels and other GHG reduction options in Germany

8th ISCC Global Sustainability
Conference

20th Feb 2018

GHG targets

- Annual GHG targets:

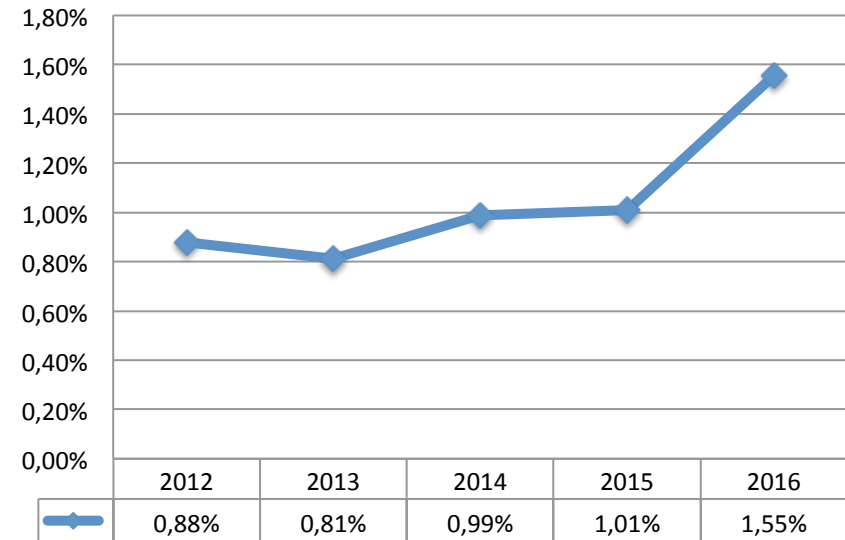
Years	GHG target
2017 – 2019	4 %
from 2020	6 %

- Target continues after 2020 at the level of 6 %
- GHG balance determines how much fuels can contribute toward the target
- Advanced / Waste based biofuels (typically) have better GHG balance than conventional biofuels

Current market situation

- Total Market volumes (2016):
 - Diesel 37 Mio. t
 - Petrol 18 Mio. t
 - Biofuels 2,3 Mio. t

- Waste based biofuels:
 - Market share increased since 2013
 - 2016: more biofuels based on wastes / residues than on rape seed



New provisions / compliance options

- New provisions / compliance options for GHG quota introduced in implementation of FQD / ILUC
- Other decarbonization options needed besides conventional biofuels
 - ILUC risk of conventional biofuels
 - Biomass potential limited
- Key points:
 - Advanced (bio)fuels
 - Electric vehicles
 - (gaseous) Renewable fuels of non-biological origin
 - CNG/LPG
 - Co-processing, Bio-LPG
 - UERs

Waste based biofuels / Advanced (bio)fuels

- fewer sustainability concerns
- GHG advantages
 - Lower direct GHG emissions
 - Lower ILUC risk
- ➔ count higher towards GHG quote
- Used cooking oils (UCO) most important feedstock

Advanced (bio)fuels

- Includes also renewable fuels of non-biological origin
- **Availability** of advanced (bio)fuels currently limited
 - limited number of producers
 - small market volumes
- **Binding Subtarget** introduced in Germany from 2020 onwards:
 - 0,05 % in 2020
 - 0,1 % from 2021
 - 0,2 % from 2023
 - 0,5 % from 2025
- **Exemptions for small fuel suppliers up to 2024**

Electric vehicles

- FQD foresees **electricity used in EVs** as **new compliance** option
- Electricity suppliers can contribute to compliance of GHG targets since Jan 2018
- Verification procedures for public charging stations and private households / companies
- GHG emissions based on **national electricity mix**
 - Annual Publication of average GHG emissions of electricity mix
 - value for 2018: 168 gCO₂ / MJ (corresponds to 67,2 gCO₂ / MJ or ca. 29 % GHG reduction compared to base value)

Renewable fuels of non-biological origin

- Electrification not possible in all parts of transport => **liquid fuels needed in long term** (at least in **aviation** and **shipping**)
- **GHG emissions** depend strongly on the electricity used
 - **low GHG emissions only** for fuel production using **renewable electricity**
 - **average grid electricity:**
 - assuming 50 % conversion efficiency for PtL production with grid electricity in Germany results in fuel **GHG emissions of >330 gCO₂ / MJ** (fossil diesel: 94,1 gCO₂ / MJ)
- production costs higher than for conventional fuels
- Substantial cost saving potential at locations with a good combination of wind and sun hours

Renewable fuels of non-biological origin under the FQD in Germany

- **Renewable gaseous fuels** (H_2 , CH_4) of non-biological origin can be counted toward the FQD GHG targets in Germany **since 1 Jan 2018**
 - GHG reduction > 90 %
- **Three options** for origin of electricity:
 - **Direct connection** to Wind / PV generation
 - Electricity that would **otherwise** be **curtailed** (fuel production plant started and stopped by transmission network operator)
 - **Grid electricity** only for **existing R&D plants**
- **Renewable liquid fuels** of non-biological origin to be added; COM proposal expected

Upstream Emission Reductions (UER)

- verified project-related emission reductions **prior to refineries**
 - e.g. avoided emissions from **flaring / venting**
 - subject to **approval** of **Environmental Agency (UBA)**
- counted **from 2020** (on-going) up to 1,2 % out of the 6 %
- **additionality** requirements similar to CDM
 - real emission reductions
 - only **new projects**
- national UER register for issuance of UERs operated by UBA
 - **Project operators** and **obligated parties** have accounts
 - account holders **can share contact information** through the register
 - account holders **can transfer UER certificates to another account holder (contract outside the register)**
 - **Other MS** can obtain an account to **receive UER certificates**

UERs - procedure

- validation of project by independent validator
- project operator submits **project documentation** and **validation report** to UBA for **approval**
- **publication** of
 - level of expected **annual emission reductions**
 - (optional) name of project operator
 - (optional) calculation methodology
- project operator **monitors** UERs and obtains **third party verification**
- UBA allows the **issuance of UER certificates in the national UER register** based on verification reports
- fuel suppliers (obligated parties) submit **UER certificates** to customs authority annually and cancel them in the UER register

Conclusions

- Several modifications and new compliance options went into force in 2018 and further changes are adopted for 2020
- Role of new compliance options will increase in the medium and long term
- Post 2020 implementation strongly depends on EU framework → swift negotiations and publication of Directive desirable to create certainty for investors



Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Thank you!