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## Biofuels for Transport in the Asia-Pacific Region

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f3 – Swedish Knowledge Centre for Renewable Transportation Fuels

# Biofuels for Transport in the Asia-Pacific Region

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April 2013



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# Purpose

- To provide a brief overview of activities related to biofuels for transport in the Asia-Pacific Region, which covers a diverse range of countries and economies.
- The focus is on the Asia-Pacific Economic Cooperation (APEC), which is the premier forum for facilitating economic growth, cooperation, trade, and investment in the Asia-Pacific Region.



# Asia-Pacific Region



Source: NREL (2008) [www.biofuels.apec.org](http://www.biofuels.apec.org)



# Cooperative Activities

- APEC Biofuels Taskforce (2004-2012)
  - [www.biofuels.apec.org](http://www.biofuels.apec.org)
- APEC Expert Group on New and Renewable Energy Technologies
  - [www.egnret.ewg.apec.org](http://www.egnret.ewg.apec.org)



# Biofuels Taskforce

- Established in 2004 and completed in 2012, the Biofuels Taskforce has conducted extensive research on biofuels in the Asia-Pacific Region.
  - Study on the Future of Liquid Biofuels
  - Study on Biomass Resource Assessments
  - Study on Employment Opportunities from Biofuels Production
  - Study on Sustainable Biofuels Development Practices
  - Study on Biofuels Transportation and Distribution Infrastructure Strategies



# Biofuels Use

- Ethanol and biodiesel in the Asia-Pacific Region are used in various blends with petrol and diesel.
- Low-level blends (like E10 and B5) are most commonly used and create large incentives for biofuels production.
- The USA and Australia are testing the use of E20 in regular vehicles. In 2008, Thailand started sales of E20 for use in compatible vehicles.
- High-level blends (like E85 and B100) are used in special vehicles and the market remains relatively small. E85 is only offered nationwide in the USA. B100 is offered in the USA and Australia to serve professional fleets.

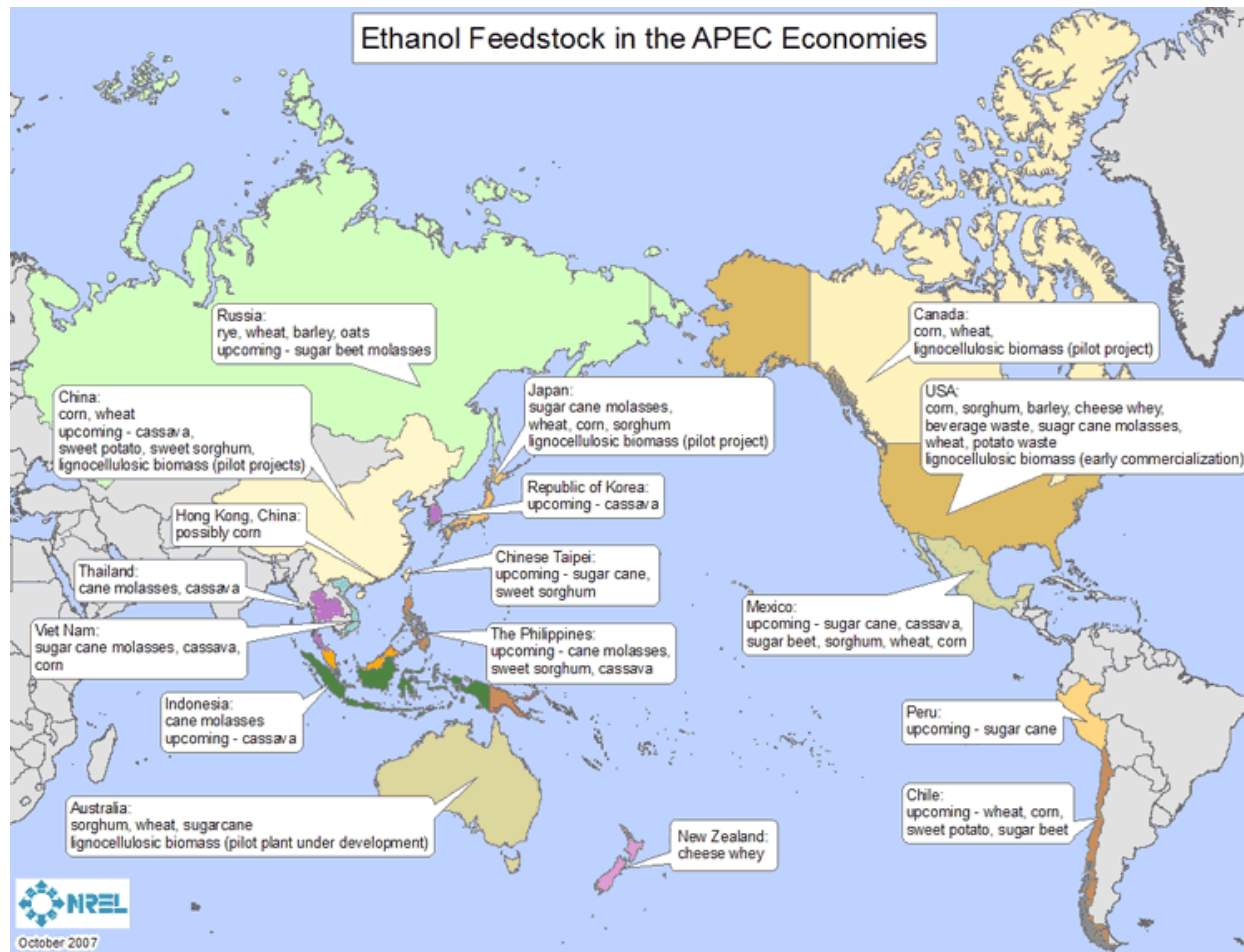


# Biofuels Production

- Biofuels in the Asia-Pacific Region are produced from a variety of first-generation feedstocks.
  - For ethanol production, these include: starches from grains (cereals, feed, and grains), tubers (cassava and sweet potatoes), sugars from crops (sugar beets, sugarcane, and sweet sorghum), and food-processing by-products (molasses, cheese whey, and beverage waste).
  - For biodiesel feedstocks, these include: vegetable oil (mainly soybean, rapeseed, and palm oil), used cooking oil, and animal fat (tallow and cat fish oil).
- Second-generation feedstocks for ethanol production include lignocellulosic materials, and an advanced biodiesel resource is algae.

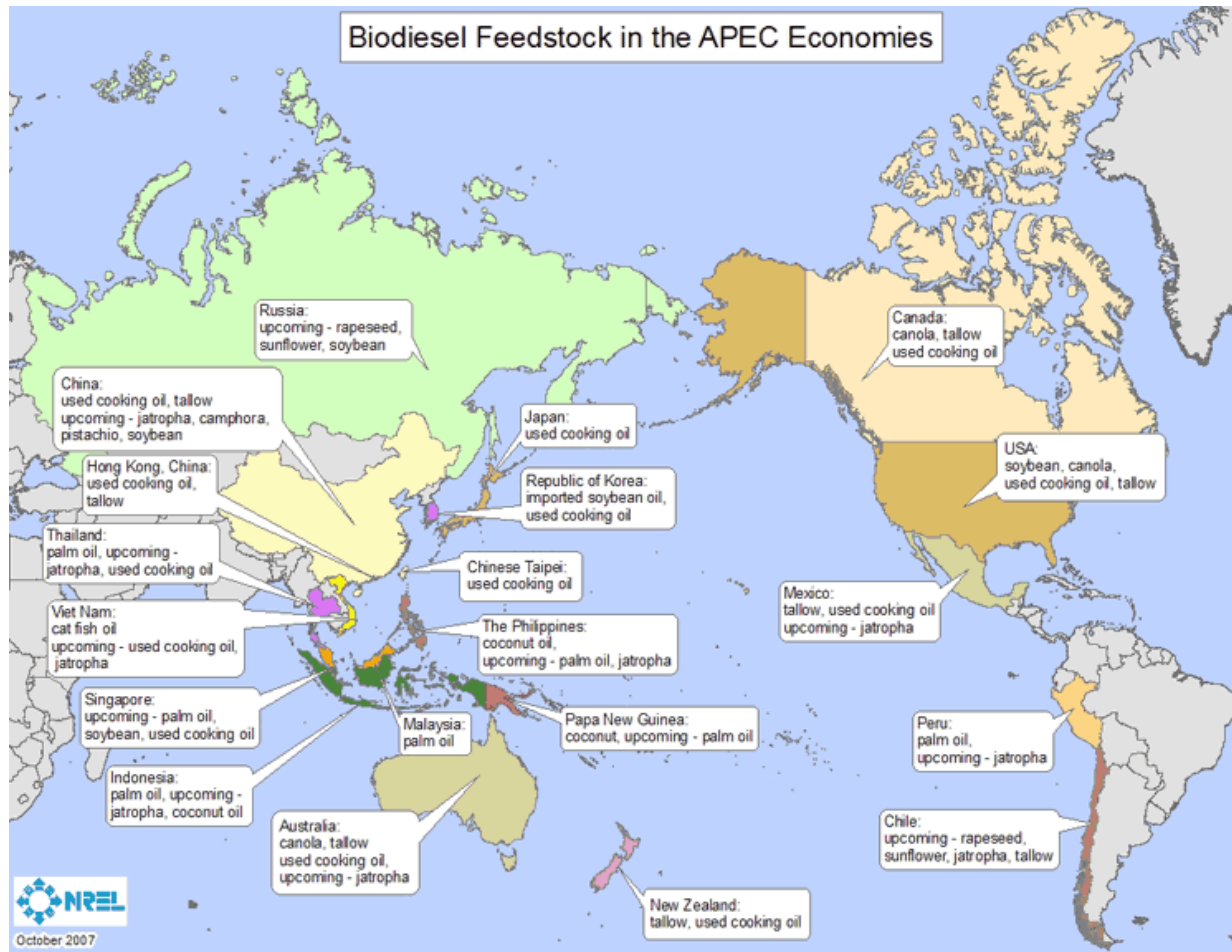


# Ethanol Feedstock



Source: NREL (2007) [www.biofuels.apec.org](http://www.biofuels.apec.org)

# Biodiesel Feedstock



Source: NREL (2007) [www.biofuels.apec.org](http://www.biofuels.apec.org)



# Biofuels Trade

- Although biofuels trade is relatively minor within the Asia-Pacific Region at present, some countries see substantial opportunities for export, including Malaysia, Thailand, Indonesia, and the Philippines.
- China, Korea, and Japan are projected to import significant quantities of biofuels in the future, creating a major flow of biofuels trade in the Asia-Pacific Region.



# Biofuels Policies

- There are various levels of government involvement and support for biofuels in the Asia-Pacific Region.
- Some governments have no or limited supportive policies in place. Other governments have adopted a range of policy instruments that support the production and consumption of biofuels.
- The most common policies supporting biofuels in the Asia-Pacific Region are mandates for compulsory blending with petrol or diesel. Other policy instruments applied include fuel tax exemptions, loan guarantees, reduced enterprise taxes and subsidies, and R&D investments.



# Biofuels Future

- A key finding in the research by the Biofuels Taskforce is that first-generation biofuels are limited in the Asia-Pacific Region.
- Second-generation biofuels can play a more significant role, and can replace 40% of petrol imports and 20% of diesel imports in the medium term, and long term prospects are potentially more.



# Summary

- APEC provides a forum for cooperation on biofuels in the Asia-Pacific Region and will continue to act as a strategic meeting point.
- The Asia-Pacific Region will play an increasingly important role in the global production, use and trade of biofuels.
- Collaboration in the Asia-Pacific Region is critical to the development of local and regional markets and sharing lessons.



# Sammanfattning

- APEC utgör ett viktigt forum för strategiskt samarbete kring biobränslen i Asien- och Stillaahavsregionen.
- Asien- och Stillaahavsregionen får en allt viktigare roll i den globala produktionen, handeln och användningen av biobränslen.
- Asien- och Stillaahavsregionen är beroende av samarbeten för utvecklingen av regionala marknader såväl som utbytet av erfarenheter



# Key References

- APEC Biofuels Taskforce. 2011. Biofuels Transportation and Distribution Options for APEC Economies.
- APEC Biofuels Taskforce. 2012. Final Report of the APEC Biofuels Taskforce.
- Kunen, E. & Chalmers, J. (Winrock International). 2010. Sustainable Biofuels Development Policies, Programs and Practices in APEC Economies.





# Further Information

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