



**4TH SESSION OF THE GROUP OF EXPERTS ON GAS
PALAIS DES NATIONS, GENEVA 27 AND 28 MARCH 2017**

Item 9: Removing barriers to the use of natural gas as a transportation fuel

Economic and Social Commission for Western Asia

“Would Natural Gas dominate in the Transportation Sector”



UNITED NATIONS

الاسكوا
ESCWA

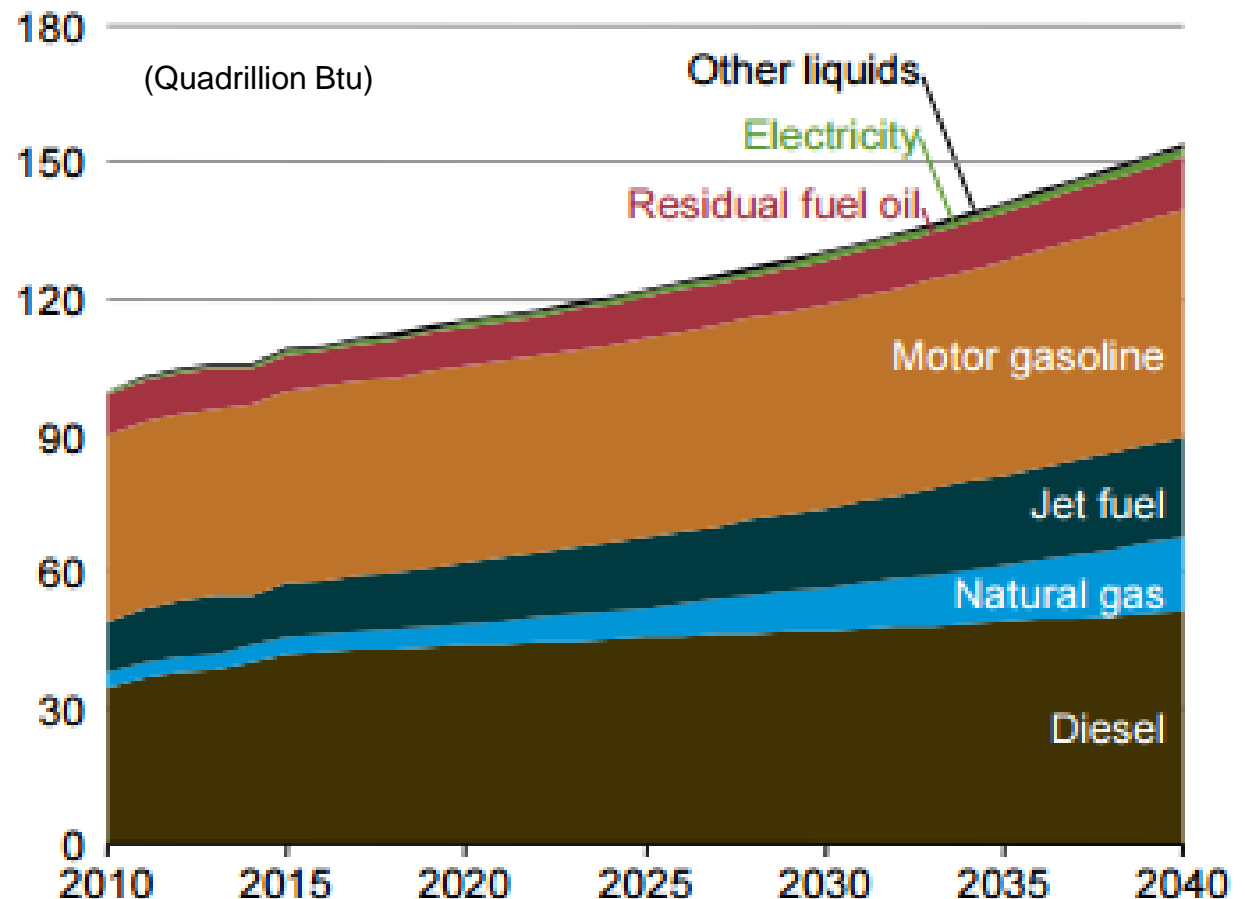
Radia Sedaoui
Chief Energy Section
Sustainable Development Policies Division

40
YEARS

Transport Sector Energy Consumption

Transportation sector energy consumption is projected to increase by an annual average rate of **1.4%** between 2010 and 2040

The share of natural gas as a transportation fuel grows from **3% in 2012** to **11% in 2040**

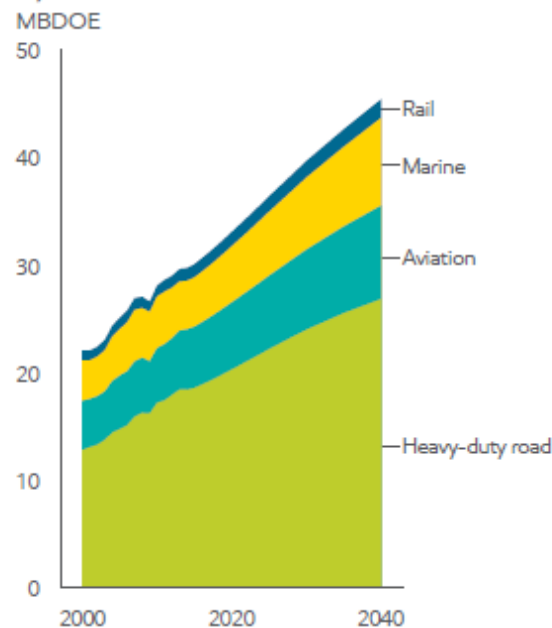


Source: EIA, IEO2016

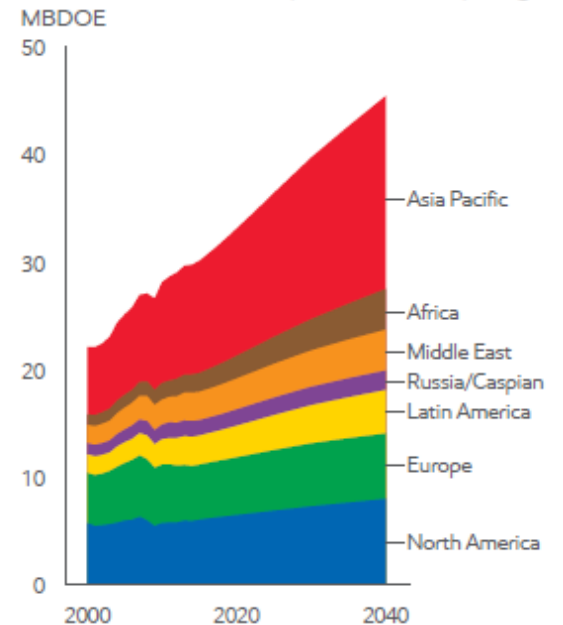
Outlook of Natural Gas in the Transportation Sector

- 50% of Buses fuel consumption in 2040, 17% of freight rail, 7% of light-duty vehicles, 6% of domestic marine vessels.
- LNG is preferred for marine shipping and heavy duty vehicles.
- CNG is more appropriate for smaller vehicles, already popular in the Asia Pacific Region

Commercial transportation demand by sector



Commercial transportation by region



Source: Exxon Mobil, 2016

NGV: Major Opportunities & Challenges

Opportunities & Benefits

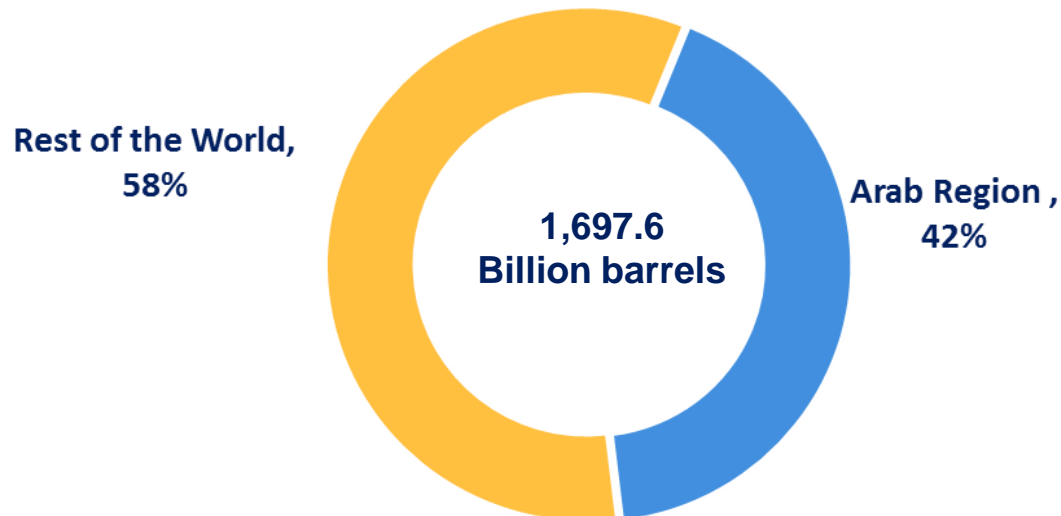
- Reduce urban air pollution and GHG,
- More than 17 million NGV Worldwide,
- More than 24,000 refueling stations,
- 2% of road transport demand (around 1% in the Arab Region),
- Reduce oil, diesel, gasoline imports or take benefit from export revenues,
- Create jobs and strengthen the economy.

Challenges

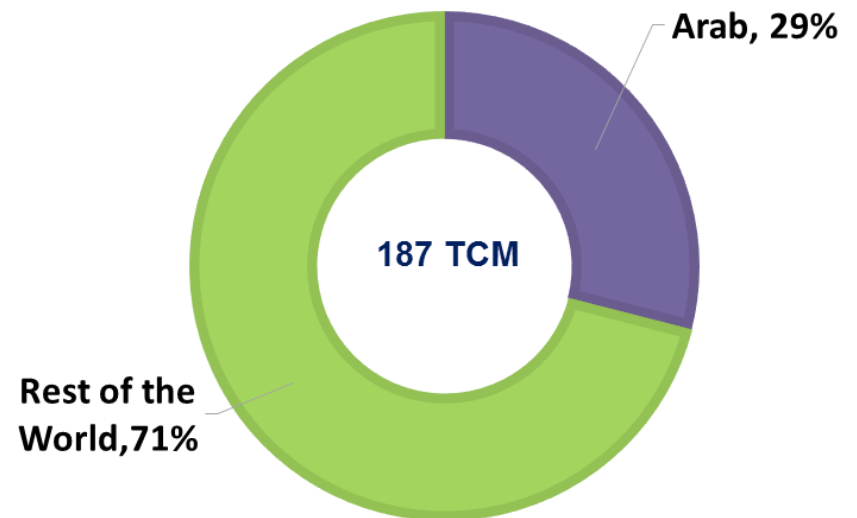
- NGV is still in its infantine stage,
- Insufficient harmonization of Standards for equipment and processes,
- Security of fuel supply & demand,
- Shortage of refueling infrastructure,
- Insufficient legal certainty & policies
- Technology improvement ,
- High up front and maintenance costs,
- Switching to a new fuel and rigid path dependency,
- Competences, knowledge and skills
- Public perception of LNG as a dangerous Fuel.

Reserves abundance in the Arab Region

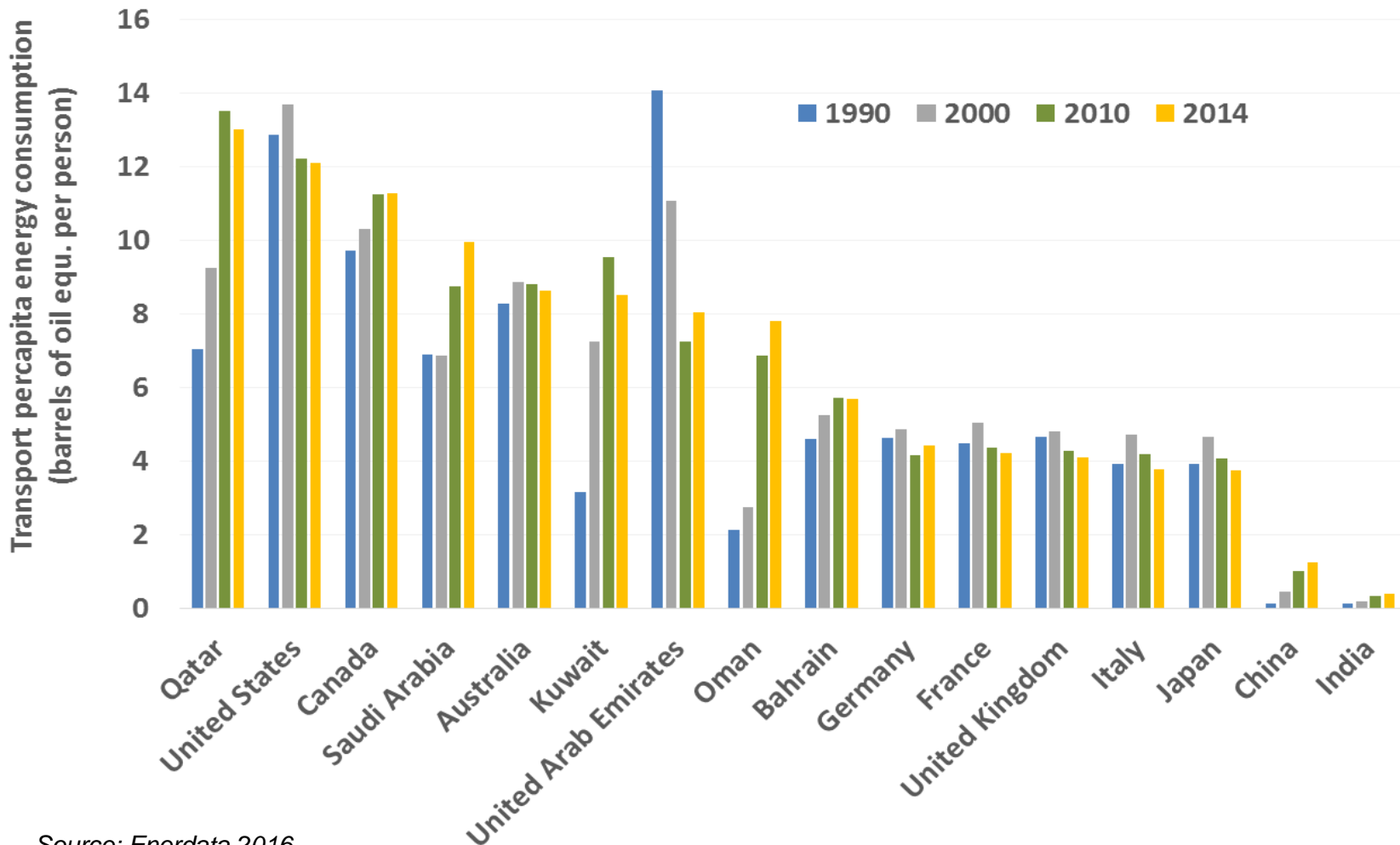
OIL PROVED RESERVES AT END 2015



GAS PROVED RESERVES AT END 2015

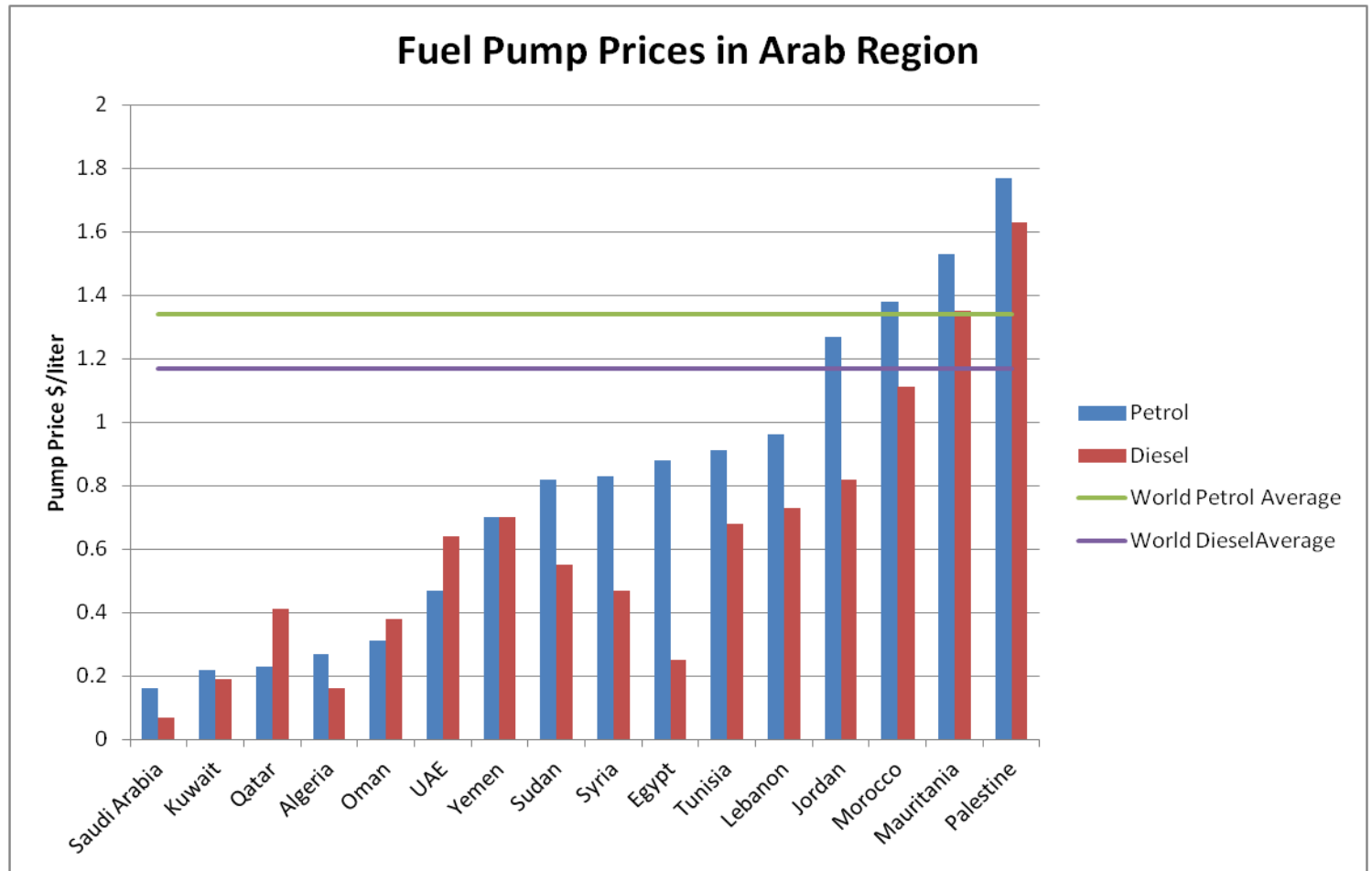


Transport energy consumption per person



Source: Enerdata, 2016

Cost and Economics



Source: World Bank, 2016

Barriers for natural gas use in transportation sector: In ESCWA Member Countries

Political and regulatory framework:

- Subsidized prices for petrol/diesel
- Limited financial incentives
- Legal certainty and investment climate
- Performance based Standards for gas quality, refueling stations, vehicles....

Technology availability:

- Lack of local manufacturing of NGVs, components, conversion to NGV, and maintenance
- Vehicle's mostly imported and insufficient incentives for NGVs

Cost and Economics:

- Price differential between petrol/diesel and natural gas,
- Lack of transparency on reflecting energy content of NG at pump stations
- **Absence of regional gas market**

Infrastructure:

- **Few refueling infrastructures**
- **Reliability of Logistics**
- **Perception of commercial risk to use NG for the LNG fleet**

Priority Areas for removing barriers to the use of natural gas as a transportation fuel in the ESCWA Region



Sector reforms & restructuring energy subsidy and pricing systems

Financial incentives for conversion/repowering of gasoline & diesel vehicles to NG and for purchase of NGVs

Reinforcing standards, codes, and regulations for NGVs use

Incentivize the installation of natural gas fuel pumps at service stations

Encourage the expansion of NGVs in public transportation & government fleets

Stimulate the production of Local content/spare parts and NGVs maintenance facilities

Promotional campaigns to encourage the use of NG and better understand its long term benefits and fuel savings

Economic and Social Commission for Western Asia



UNITED NATIONS

الاسكوا
ESCWA

Radia Sedaoui

Chief Energy Section

Sustainable Development Policies Division

40
YEARS