ForFITS at UNECE

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Brief history of ForFITS

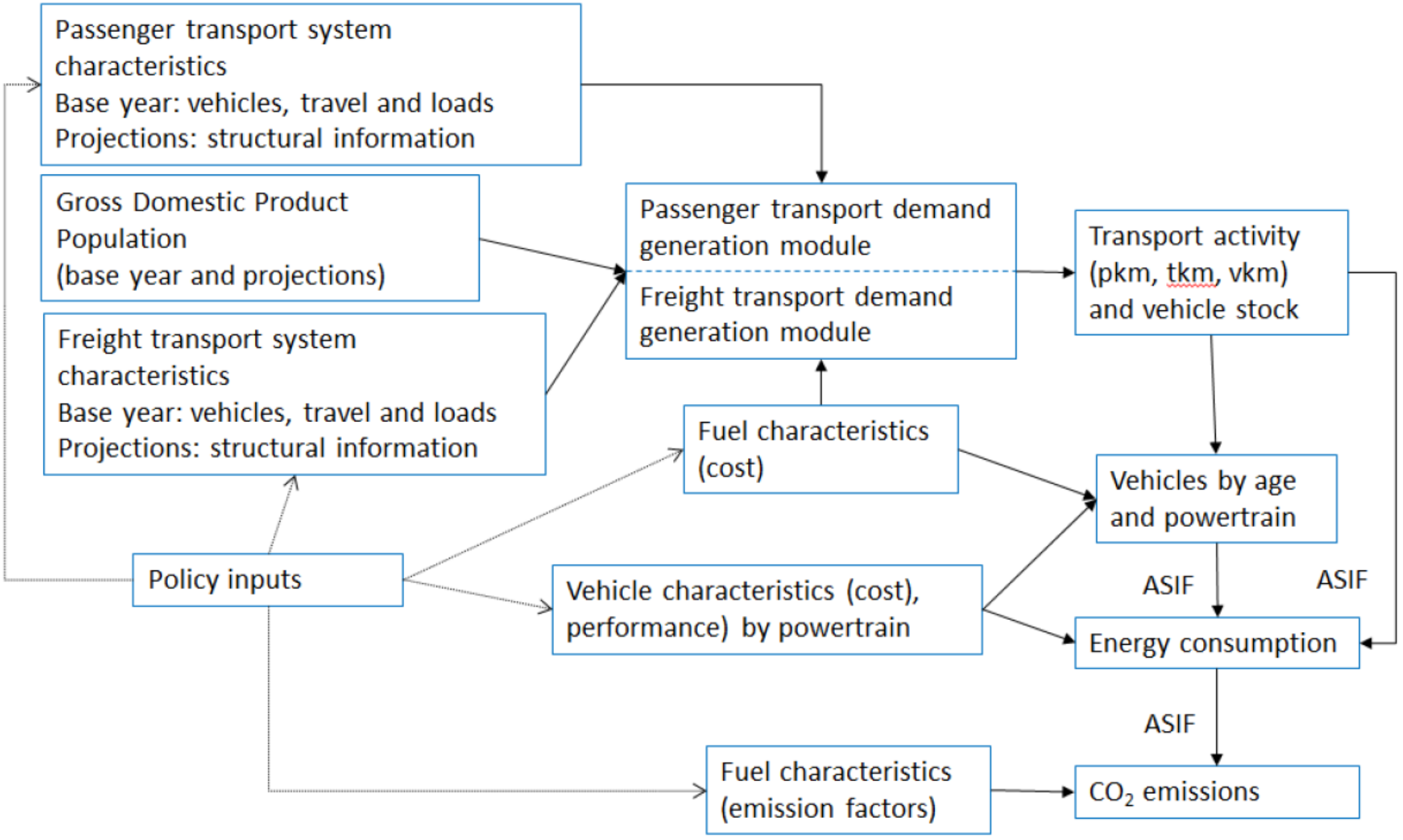
- 2011-2013 aprox 700kUSD budget from UNDA (Development Account) => General Assembly
- Initial goal:
  - Web—based tool offering a standard monitoring and assessment tool for CO2 emissions in inland transport including a transport policy converter.
  - Done by external consultants
- Final tool :
  - done internally
  - Model publically available, all documentation is on-line.
  - Free license Vensim Reader; view not modify

Modelling Approach

- Bottom-up ASIF
- Vensim used as modelling software:
  - System dynamics
  - Visual «graphic» interface
  - Input/Output in Excel
- Modelling framework only:
  - Default values embedded
  - Different approach to transport policies impact evaluation
    - Endogenous for fiscal/ economic stimulus policies
    - Exogenous for other policies

46 views in the ForFITS model

Modelling structure



Policy impact evaluation

- Policy types classified by complexity to model in ForFITS:
  - Baseline
    - Embbeded in the model
  - Low Medium High
    - Complexity level depends on data needs and endogeousness of analysis/results

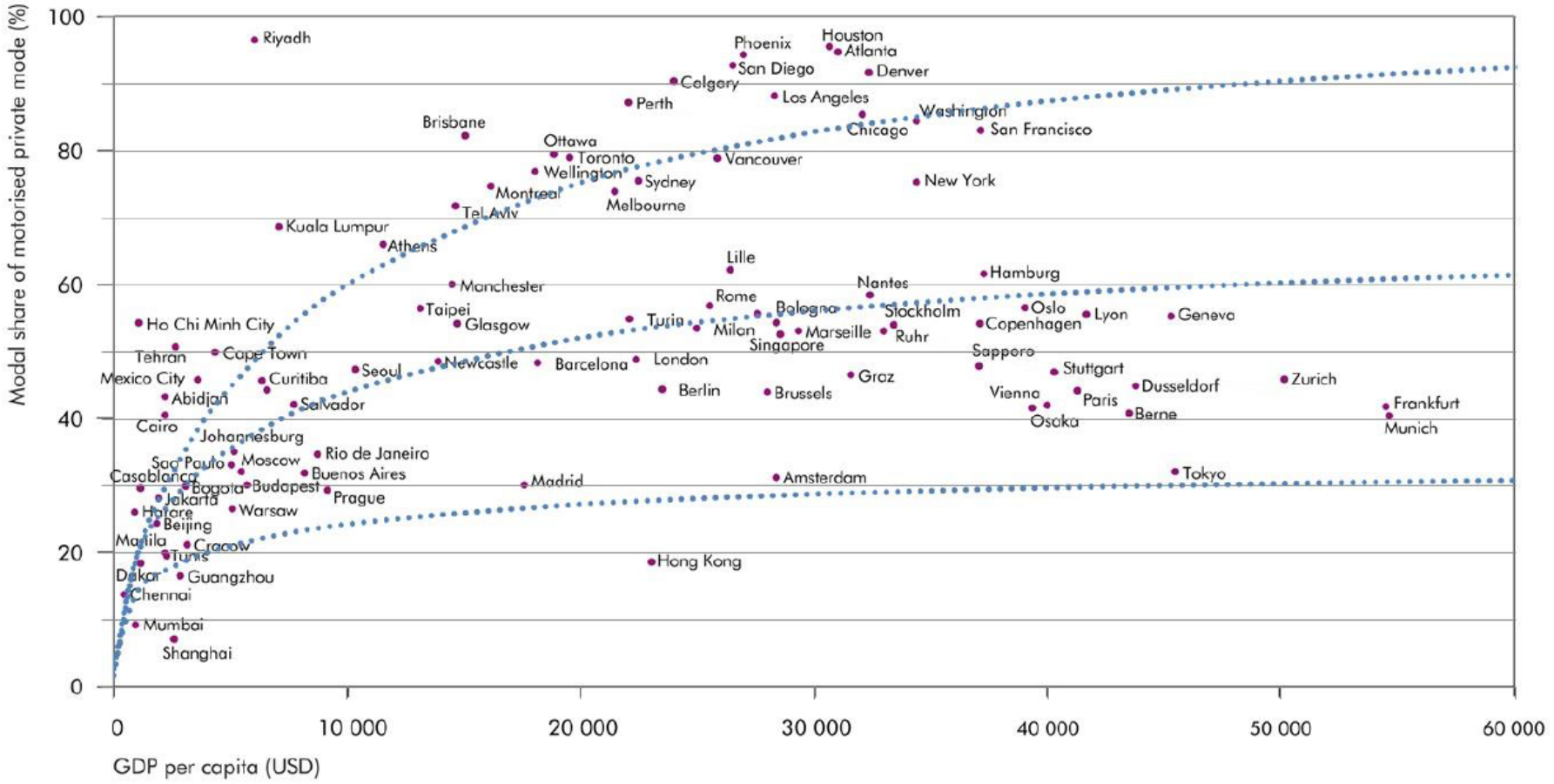
Scenarios/policies	*Baseline*	*Low*	*Medium*	*High*
3. Economic scenarios and avoid/shift policies normally implemented through economic instruments				
3.1. Changes to macroeconomic parameters (GDP and population)		✖		
3.2. Changes to fuel cost (excludes national fuel taxation schemes)		✖		
3.3. Changes to national fuel taxation schemes		✖		
3.4. Changes to purchase vehicle cost	✖			
3.5. Changes to road pricing			✖	
3.6. Changes to crew cost			✖	
3.7. Structural changes in freight transport due to changes in the country's economy orientation				✖
3.8. Environmental culture (participatory instruments)				✖
3.9. Changes to pipelines network extension		✖		
4. Shift policies/scenarios				
4.1. Shift from/to personal vehicles to/from public transport		✖		
4.2. Shift between large-freight modes		✖		
4.3. Changes to shares within transport modes which are grouped together in activity projections		✖		
5. Improve policies/scenarios				
5.1. Expected energy efficiency technology improvements	✖			
5.2. Penetration of new technologies (Endogenous technology choice)				✖
5.3. Penetration of new technologies (Exogenous technology choice)		✖		
5.4. Changes to fuel characteristics (Biofuels)			✖	
5.5. Vehicle fleet renewal			✖	

Interesting features (1)

- Environment culture index
  - Qualitive instrusment to simulate participatory instruments (labelling, awareness-raising campaigns,…)
  - Behavioural changes associated with environmental consciousness
  - Dimensionless value set between 0 and 1
  - Impacts the S-curve asymptot and slope of bike and individual motorized vehciles
  - Tricky to estimate such index

Interesting features (2)

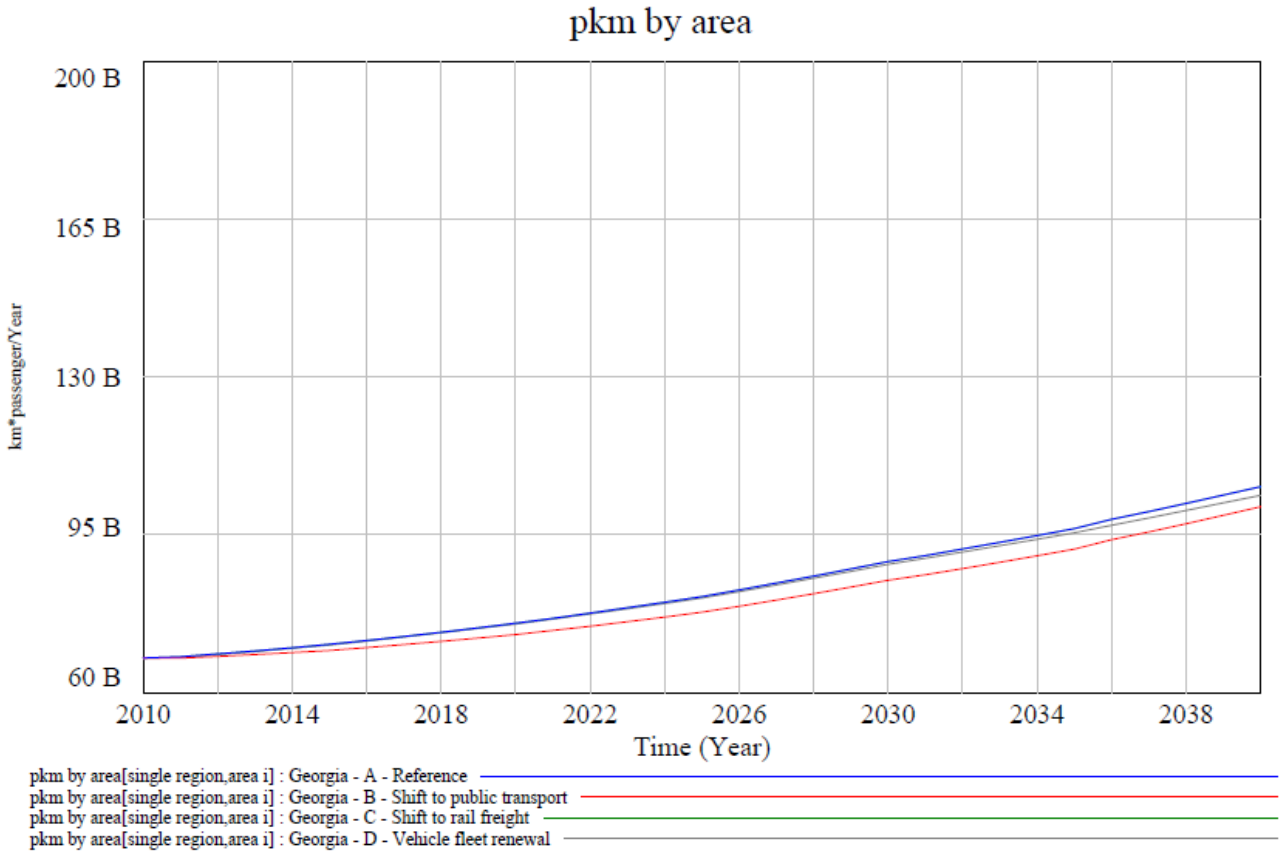
- Passenger transport characteristic index
  - Based on PT use of cities according to GDP by cluster
  - Choosing which pattern the city/country is in

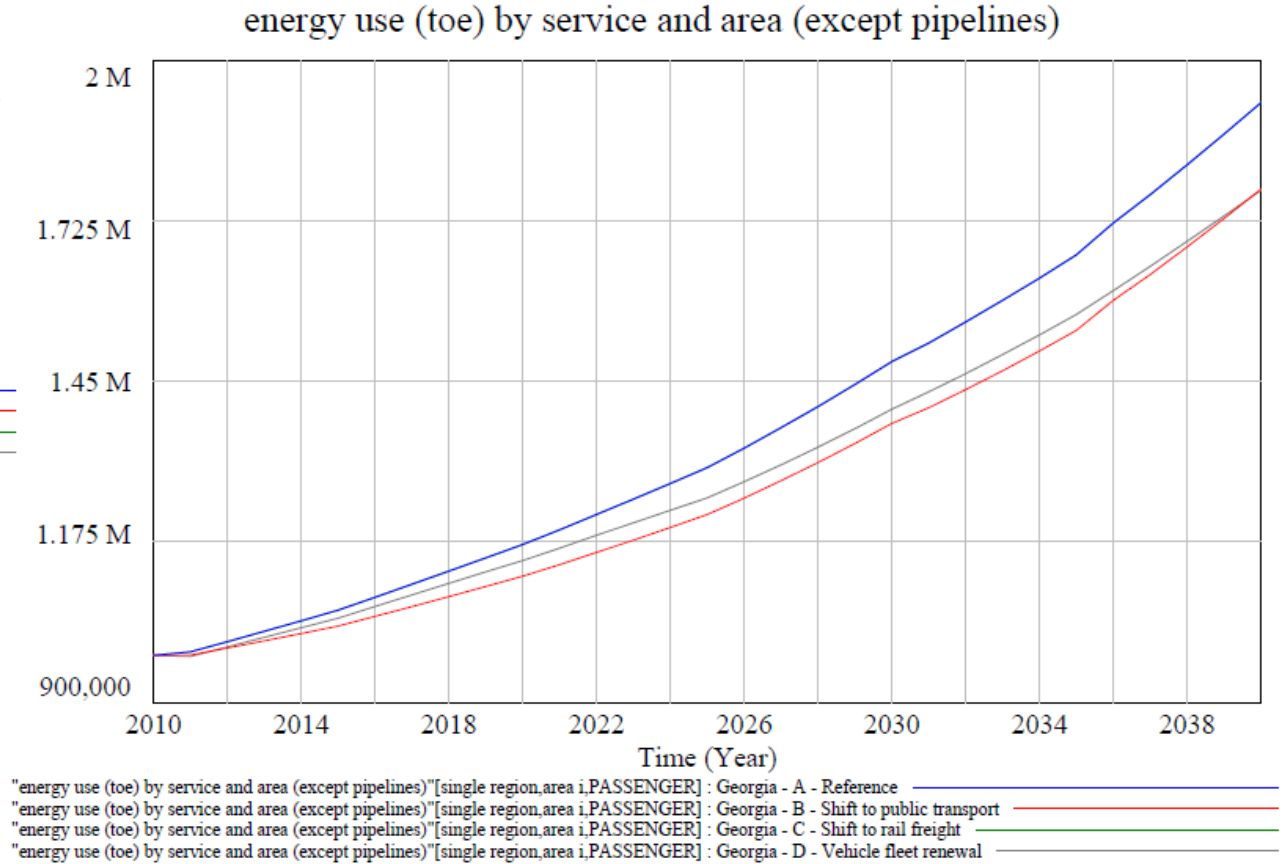


Use of ForFITS

- Series of Workshops/ training during Project Inception
- Internal:
  - Environmental Performance Review (EPRs) of UNECE
    - Focusing on Eastern European countries
    - Albania, Taijikistan, Belarus, Georgia, Lithuania, Uzbekistan (2019)
  - Transport Health Environment Pan-European Programme (THE PEP)
    - Urban applications:
    - Mannheim, Kaunas
- External:
  - Limited insights, no tracking of model downloads / use
  - Evaluation underway
  - Survey sent last week

Example – ForFITS report for Georgia





Model Development

- 2016-2018 Workplan:
  - User interface
  - NRMM module
  - Addition of Local Pollutants
- Subject to external funding which has not materialized
- Internal focus has been on data visualization

- SafeFITS model developped separately for road safety

Latest developments

- Data visualization as a first step to improve user interface, to increase visibility of model analysis/results
  - Show inputs/outputs in more interactive ways
- Assessment of various Business Intelligence software:
  - Tableau
  - Microsoft Power BI
  - Qlick Sense

Conclusion / Next Steps

- ForFITS publically available, Vensim license needed to dig into/modify the model
- Vensim language visual, not necessarily easy
- Model approach would need an (deep) update
- Bridge between Technical Vehicle regulations and modelling activities
- In-house resources limited, cooperation the way forward
- iTEM membership important for us

Thank you

More at:

http://www.unece.org/trans/theme_forfits.html