Road pricing and charging in Norway

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Road charging in Norway

- 80 years experience and more than 100 projects
- 15 years average duration -> 60 current projects
- Urban toll systems for the last 31 years
- AutoPASS 1999
- All Electronic Tolling (AET) from 2004 (8 cities today)
  = Open Road Tolling (ORT) = Automatic tolling
- Point payment only
- Full interoperability: Norway 2004, DK+SE+NO 2007
AutoPASS

- Owned by the NPRA
- Independent of industry and open to all
- In full compliance with European standards for DSRC (5.8 GHz)
- 2 million AutoPASS tags in use (Norway has 5 million inhabitants)

Road tolling projects in Norway, September 2012

Pioneers:
- **Bergen** (1986), first toll ring (no EFC), (Singapore from 1975)
- **Ålesund** (1987-2009), world’s first EFC tolling system

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Nordic EFC (Electronic Fee Collection) interoperability = EasyGo
- logo and map in the user brochure:

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Oslo Package 1
Implemented in 1990

- Why?: 50 projects in 10 years instead of 35 years
- Oslo and the neighbouring county of Akershus (60/40)
- Users pay only 55%
- The toll ring covers all roads in three corridors
- 50% of Oslo’s population lives inside the toll ring
- AADT 250,000

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Annual revenue: NOK 1.3 billion and 10% operating cost
Public acceptance of the 24/7 toll ring in Oslo: Opinion polls have unveiled negative attitudes

Q2: Do you think that the Oslo toll ring is a very negative, rather negative, rather positive or very positive measure?

Increase in negative attitudes in 2001 due to:
1. introduction of “Oslo Package no.2”: NOK 2 extra earmarked for public transport
2. a fear that the toll ring would not be removed in 2007 as promised

A new increase in negative attitudes in 2007 and 2008 due to “Oslo Package no. 3”

Finally, in 2014, we got a change of opinion to a positive majority

How was it possible, in 1990, to implement a toll scheme in Oslo that 70% opposed?

- The toll was to finance road infrastructure
- Road traffic conditions were choking
- The major political parties agreed
- Bergen opened a successful toll ring in 1986
- Extra State funding
- Low fees
- Limited collection period was supposed
- People opposed to cars like motorists having to pay
- 20% of toll revenue was earmarked for public transport
What did we get?

Oslo Package 1: Mainly urban road tunnels

The major project was Festningstunnelen:
6 lanes, 1.6 km long, cost: NOK 2 billion, 45m below sea level in front of the City Hall.

Important for toll scheme acceptance: Festningstunnelen opened 2 weeks before the toll collection started.

City Hall Street before opening of the «Festningstunnel»
City Hall Street after opening of the «Festningstunnel»

City Hall Square before opening of the «Festningstunnel»
City Hall Square after opening of the «Festningstunnel»

- AADT was reduced from 90,000 to 0 vehicles
- A new tram line
- Oslo acquired an important plaza for walking, festivals and exhibitions etc.

The Oslo Toll Ring layout (1991-2008)

Oslo 1991
Best place for a toll ring: about halfway between the city border and the city centre

Four minor roads had to be closed to make the ring "watertight".

See next slide
Oslo toll plaza no. 5 on a western arterial (before 2/2-2008)

- The “AutoPASS” EFC-lane: High capacity, approx. 1600 vehicles/hour
- Approx. 300 v/hour cap. in coin machine and attended lanes (“Manuell”)
- No expansion of road area necessary

Oslo toll plaza no. 5 in 2009 (with AET)
Oslo toll ring experience in the 1990s (Oslo package no. 1)

- Small changes in traffic volumes
- Almost no relocation of shops or work places
- No capacity problems
- Toll rings unfair to drivers
- Positive effects of a great number of tunnels financed by toll revenue: Reduced noise, pollution, barrier effects and accidents, plus more public space and better road capacity

Oslo package no. 3 implemented in 2008

Adding an outer toll ring at the western border of Oslo to finance major road and railway projects west of Oslo

A political compromise

Increased fees and change of fee structure

ORT introduced after having been tested in Tønsberg and Bergen as from 2004.

See next slides
Toll plaza no.11 on E6 north (the largest in Oslo) was changed on 2 February 2008

Due to the need for a feedback signal adjacent to every payment lane, no plaza will have more than two payment lanes in parallel without an island in between.

Due to a road split, half of the E6 traffic now passes the new ORT toll plaza shown to the left.

Due to the need for a feedback signal adjacent to every payment lane, no plaza will have more than two payment lanes in parallel without an island in between.
“Congestion Charging” (yellow lines) favouring public transport was one of the options for Oslo Package 3

Fees (pcu):
- NOK 3 (1 unit) in both directions
- NOK 6 (2 units) in both directions
- Double fees during peak periods
- Free periods late evening and night
- Double fees for heavy vehicles

** City borders

- Toll cordon lines in 1990
- Oct. 2008 additional toll cordon line in Bærum, outside Oslo’s western border

Congestion charging (cc) in Norway

- **Toll rings** have been *successful “money machines”*, but politicians have been reluctant to mix with traffic regulation

- My opinion: Every big city should have a **cc scheme** to manage congestion and to finance infrastructure for public transport, park and ride, bicycling and walking etc.


- The smaller Norwegian cities of Trondheim and Kristiansand has had “time differentiated toll fees” for some time.

- Now, finally, Oslo is going to get both “Peek hour toll fees”, “Environmentally differentiation of the Fees” and “Extra high fees for all vehicles on days with extreme pollution” (occurs normally on winterdays with cold weather and no wind) and more toll points.
2018: More of the trips within Oslo is going to be paid for

Today (light blue lines), 50% of all car trips in Oslo has to be paid for

With introduction of new toll cordon lines at the city border in northeast and south (outer dark blue lines), 60% of all car trips in Oslo has to be paid for

When adding toll points at the brown lines in the center of Oslo («Ring road 2 with arms»), 75% of all car trips in Oslo has to be paid for

Oslo-actualities

- 61% of emissions from transport
- A political declaration:
  - Priority to pedestrians, cyclists and public transport users over private car user
  - 1/3 reduction of all car driving before 2030
- A new Oslo package 3 agreement:
  - Time- and enviromental-differentiation of toll fees as from 2018
  - 90% of toll money goes to infrastructure for public transport, walking and bicycling
  - 50 billions NOK extra for public transport and cycling infrastructure within the next 20 years
  - Increase income per year from 2,5 to 4,5 billions NOK
- mmm
National actualities

- More and more cities with road packages
- Automation from passing a toll point to paying
- Road charging reform
  - Regional toll companies
  - Separate and fewer contractors on tags
- EL-vehicles, hybrids
- Selfdriving vehicles
- Distance based charging (GNSS)

Informing drivers about how to pay in an ORT system

- Advertisements and brochures
- News on TV and newspapers
- Listening to friends and family
- Autopass.no and tel.no. 02012
- TRAFFIC SIGNS (simplified in 2014 and 2016)
- Service stations (not in use after 2014)
Earlier (up to 2014), all tolling projects got dedicated information boards with local information including a local map and informing about «service stations» where the drivers could pay for single trips with cash, get information and achieve AutoPASS contracts and tags.
Traffic signs in open road tolling systems (after 2016)

Congestion charging (CC) in London

- Ken Livingstone promised to introduce CC in London in 2003, and he was elected mayor.
- 1) Strengthening the public transport system,
- 2) charging approx. USD 8 per day and
- 3) running an efficient information campaign made traffic and pollution decrease by approx. 20%.

- This led to an expansion of the CC area and a rate hike to about USD 13 a day.

: The capacity gains have been eroded, and the expansion was reversed in Jan. 2011.
How does it work?

Charging 0700 – 1800
Monday – Friday  £ 10
(= USD 16 per day)

Camera enforcement

How to pay:
• Online: cclondon.com
• SMS (register first) or phone
• Cash at agents or to self-service machines
• Discounted Monthly or Annual prepayment

For more details:
www.tfl.gov.uk/roadusers/congestioncharging

Congestion tax in Stockholm

• After working on different charging schemes in Stockholm for more than 15 years, they finally succeeded in August 2007.

• People living inside the cordon line voted yes in 2006 after a trial period of 7 months.

• Strengthening the public transport system, charging a tax in both directions when passing a cordon line around the central part of Stockholm and running an efficient information campaign has led to the same positive results as in London.

• In Stockholm, the results are stable.
1 August 2007:

- Reintroduction of the congestion tax
- Vehicles taxed when entering/exiting the Stockholm city centre, an area of 34.5 km²
- Tax equivalent to USD 1.6, 2.3 or 3.1 per passage, depending on the time of day (see table)
- No tax levied at night or weekends. Foreigners are not charged.
- Exempted: Buses and “green cars”. Maximum amount per vehicle and day: USD 9.5

### 18 control points at Stockholm city entrances and exits

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<thead>
<tr>
<th>Time</th>
<th>Amount</th>
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<tr>
<td>06.30-06.59</td>
<td>10 kr</td>
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<tr>
<td>07.00-07.29</td>
<td>15 kr</td>
</tr>
<tr>
<td>07.30-08.29</td>
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<td>08.30-08.59</td>
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</tr>
</tbody>
</table>

1/3 of city inhabitants live within the congestion tax zone

### Stockholm key “success” factors

- Technical system proved reliable – on time!
- Communication was efficient
- Visible traffic improvements
- Professional and extensive evaluation programme

Information is available in English at:
http://www.transportstyrelsen.se/sv/Vag/Trangselskatt/
Trangselskatt-i-stockholm/Informationsmaterial/

A similar system was implemented in Gothenburg (Sweden’s second largest city) in 2013

Statens vegvesen Norwegian Public Roads Administration
Comparing the Norwegian toll rings to the systems in Stockholm and London

- **Stockholm and London**
  - 20% reduction in traffic; clear environmental benefits
  - dependent on public approval
  - coincided with investments in public transport and major information campaigns

- **Norwegian toll rings**
  - fee collection only
  - revenue used for more road and public transport infrastructure
  - low operating costs due to AutoPASS

Thank you for your attention!

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www.vegvesen.no
www.autopass.no

One of Norway’s highest mountains

The new opera building in Oslo

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