
# NEW ZEALAND VMT REGIME: EVOLUTION AND CHALLENGES

## IBTTA Symposium, New Jersey, May 1st 2012

# NZ Road User Charges  Regime

- Paper-based RUC (VMT) regime in operation since 1978.
- Pre-payment RUC regime applies to heavy and light diesel vehicles based on weight, distance and location.
- Refunds available for private and off-road travel.
- Hubodometers or electronic distance recorders used to verify truck and trailer distances.
- Odometers used for light diesel vehicles but plagued by widespread fraud.
- Paper-based regime well founded but high compliance costs and evasion.

# Move to Electronic Mileage Charges

- Independent Review in 2009 recommended move to electronic RUC system. In particular:
  - no ability to purchase and manage RUC online
  - paper based system susceptible to fraud and difficult to enforce
  - manual off-road refund process cumbersome
  - hubodometers are mechanical devices prone to failure and errors
  - accidental non-compliance penalises honest operators.
- Regulatory changes enabled entry of private electronic RUC providers but option to remain with paper RUC regime.
- EROAD system approved after extensive field trials, independent testing and 3rd party security review – no tender process.
- Two private Eruc providers approved to date.

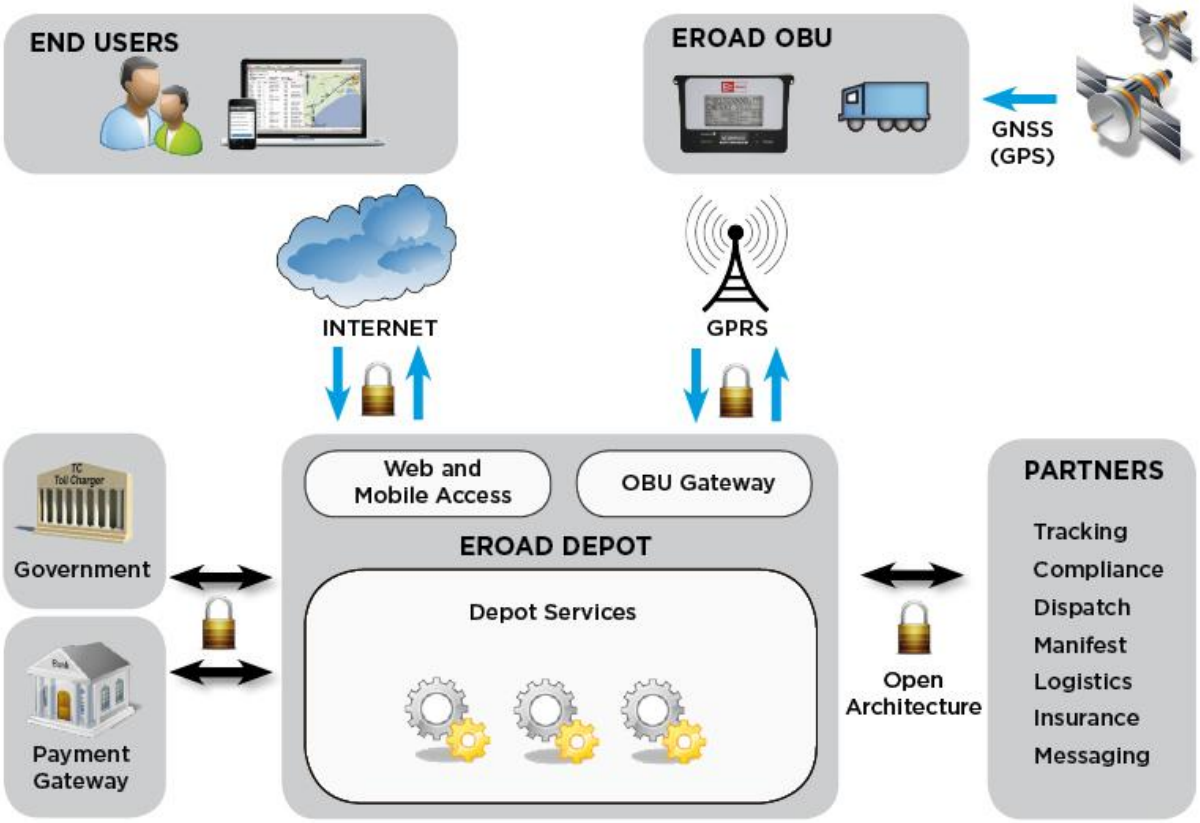
# Legal/Enforcement

- Enforcement via visual inspection of OBU and audit.
- No online access provided to enforcement agencies.
- Faults/tampers resolved by EROAD and logged.
- Provision for EROAD to report errant client behaviour – high threshold adopted.
- RUC related data can be requested by enforcement agencies.
- Vehicle/travel/speed/location data confidential and owned by user.
- EROAD collects RUC on behalf of government under general agency framework – similar to other private service providers.

# EROAD VMT System

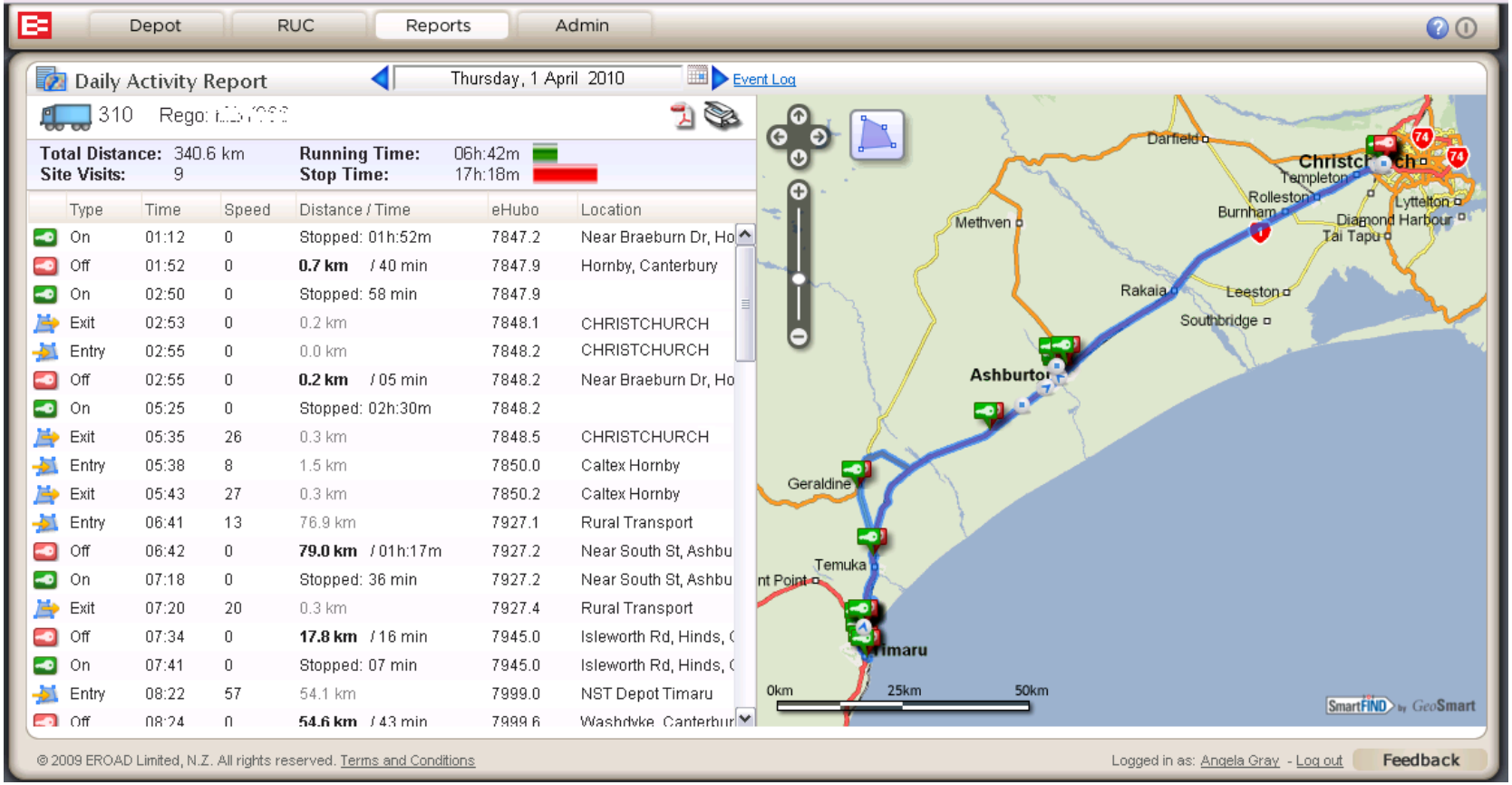
- GPS/cellular tolling system does not require roadside infrastructure and operational on all public/private roads.
- OBU employs sophisticated security architecture using internal and external sensors to prevent tampering and fraud.
- Web application interfaces with Agency database and various payment gateways - online 24/7 via CC or DD.
- Smart/thin client OBU supports advanced services via web.
- Ability to access via any web-enabled smartphone or tablet device.
- Commercial users pay a monthly fee of $30-50 per month for hardware, data, compliance and value-added services.

# Architecture



# On-Board-Unit

# Home


Depot
RUC
Reports
Admin
Daily Activity Report
Thursday, 1 April 2010
Event Log
310
Total Distance: 340.6 km
Site Visits: 9
Running Time: 06h:42m
Stop Time: 17h:18m
Type | Time | Speed | Distance / Time | eHubo | Location
On | 01:12 | 0 | Stopped: 01h:52m | 7847.2 | Near Braeburn Dr, Ho
Off | 01:52 | 0 | 0.7 km / 40 min | 7847.9 | Hornby, Canterbury
On | 02:50 | 0 | Stopped: 58 min | 7847.9 |
Exit | 02:53 | 0 | 0.2 km | 7848.1 | CHRISTCHURCH
Entry | 02:55 | 0 | 0.0 km | 7848.2 | CHRISTCHURCH
Off | 02:55 | 0 | 0.2 km / 05 min | 7848.2 | Near Braeburn Dr, Ho
On | 05:25 | 0 | Stopped: 02h:30m | 7848.2 |
Exit | 05:35 | 26 | 0.3 km | 7848.5 | CHRISTCHURCH
Entry | 05:38 | 8 | 1.5 km | 7850.0 | Caltex Hornby
Exit | 05:43 | 27 | 0.3 km | 7850.2 | Caltex Hornby
Entry | 06:41 | 13 | 76.9 km | 7927.1 | Rural Transport
Off | 06:42 | 0 | 79.0 km / 01h:17m | 7927.2 | Near South St, Ashbu
On | 07:18 | 0 | Stopped: 36 min | 7927.2 | Near South St, Ashbu
Exit | 07:20 | 20 | 0.3 km | 7927.4 | Rural Transport
Off | 07:34 | 0 | 17.8 km / 16 min | 7945.0 | Isleworth Rd, Hinds,
On | 07:41 | 0 | Stopped: 07 min | 7945.0 | Isleworth Rd, Hinds,
Entry | 08:22 | 57 | 54.1 km | 7999.0 | NST Depot Timaru
Off | 08:24 | 0 | 54.6 km / 43 min | 7999.6 | Washdyke, Canterbur
Darfield
Templeton
Rolleston
Burnham
Lyttelton
Diamond Harbour
Tai Tapu
Methven
Rakaia
Leeston
Southbridge
Ashburton
Geraldine
Temuka
Timaru
0km
25km
50km
SmartFIND by GeoSmart
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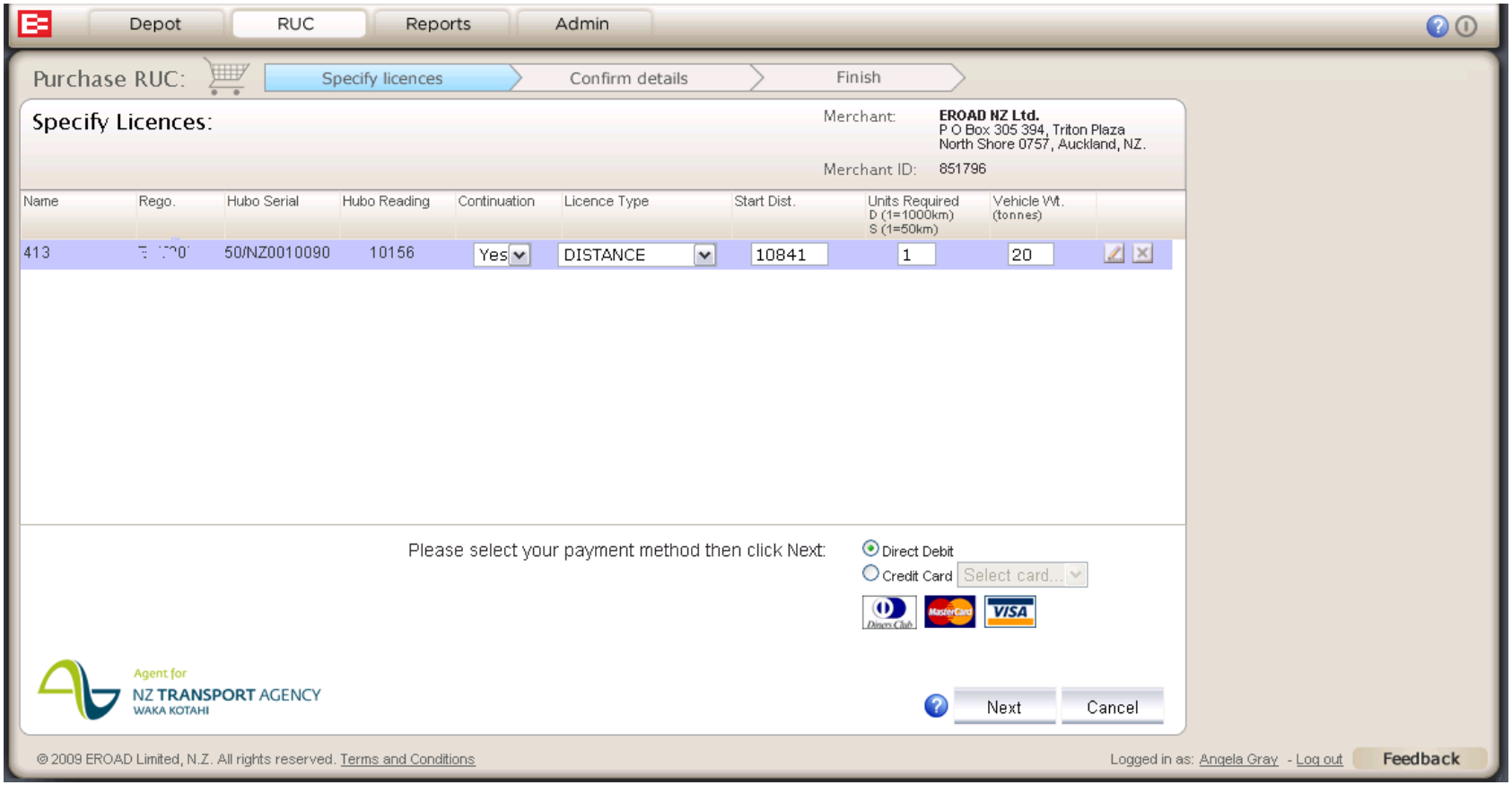
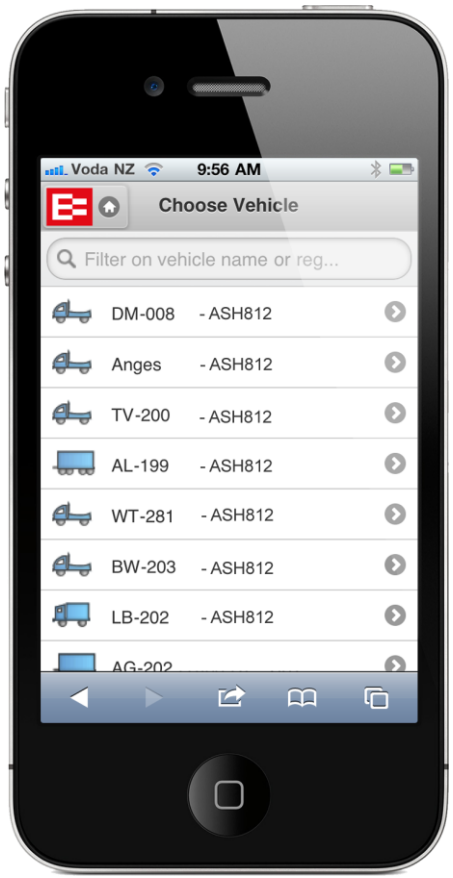
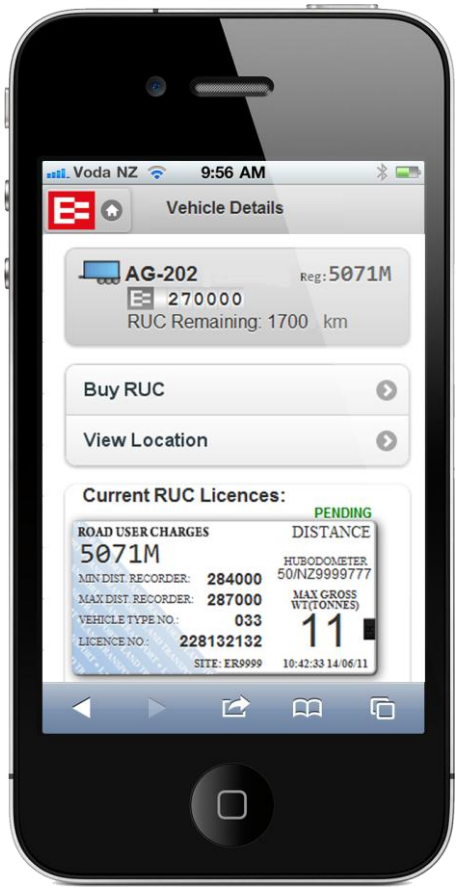
Logged in as: Angela Gray - Log out
Feedback

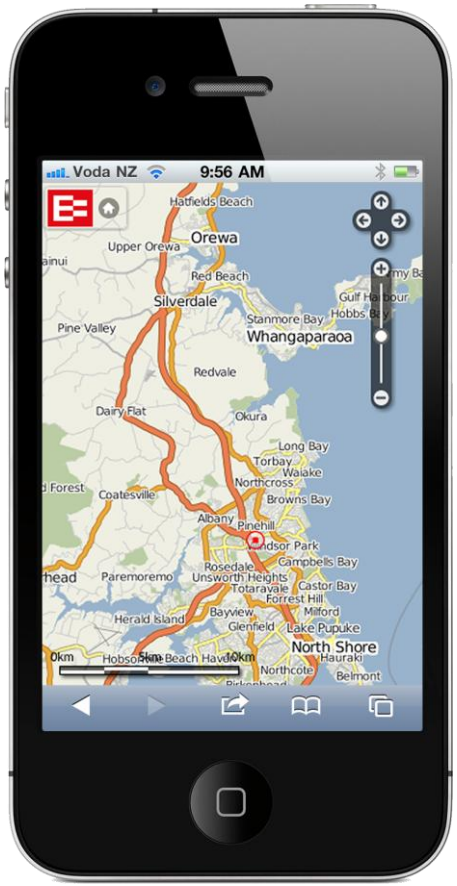
# Online Payment



# Mobile Services

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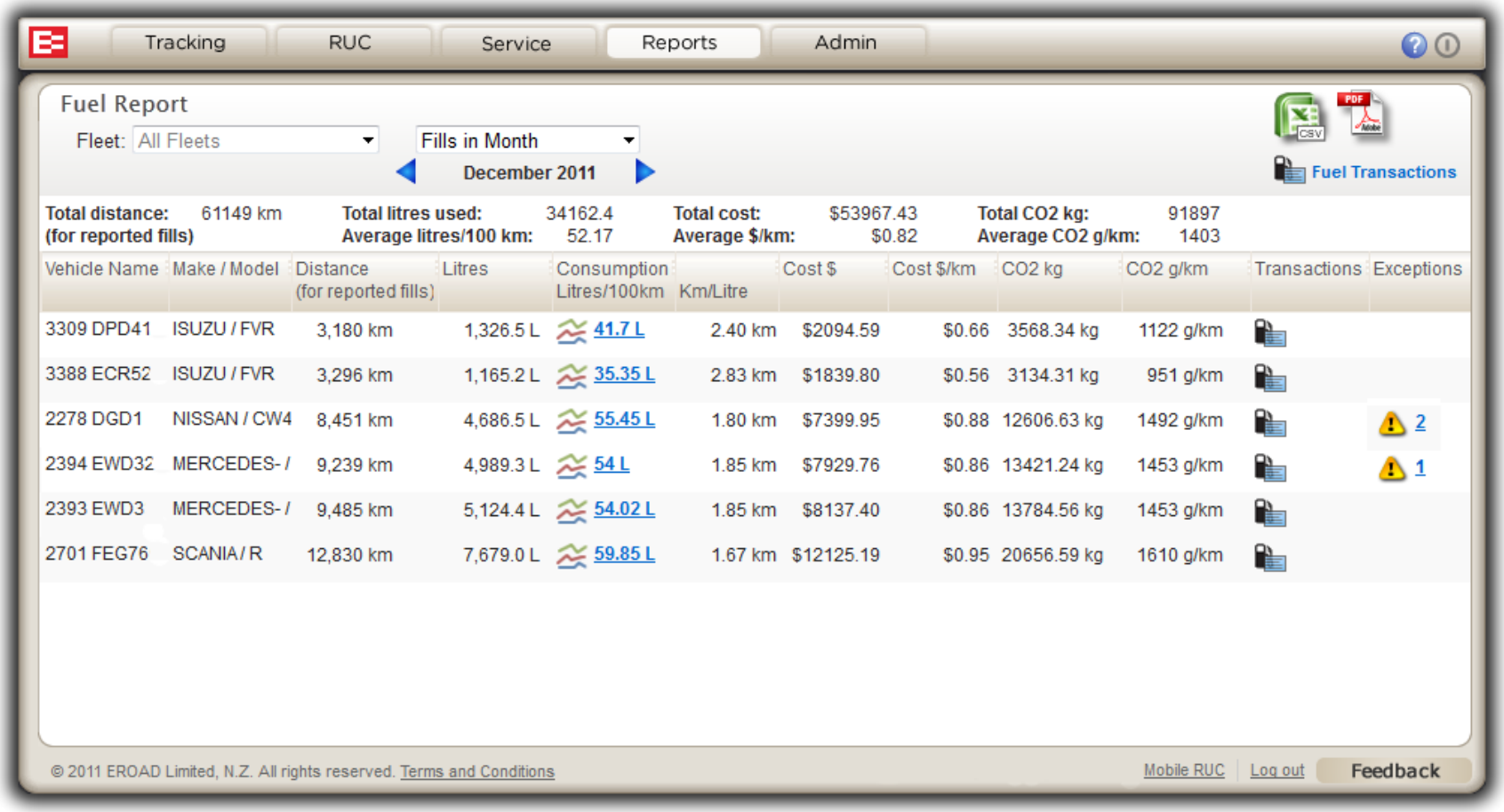
# Fuel Management

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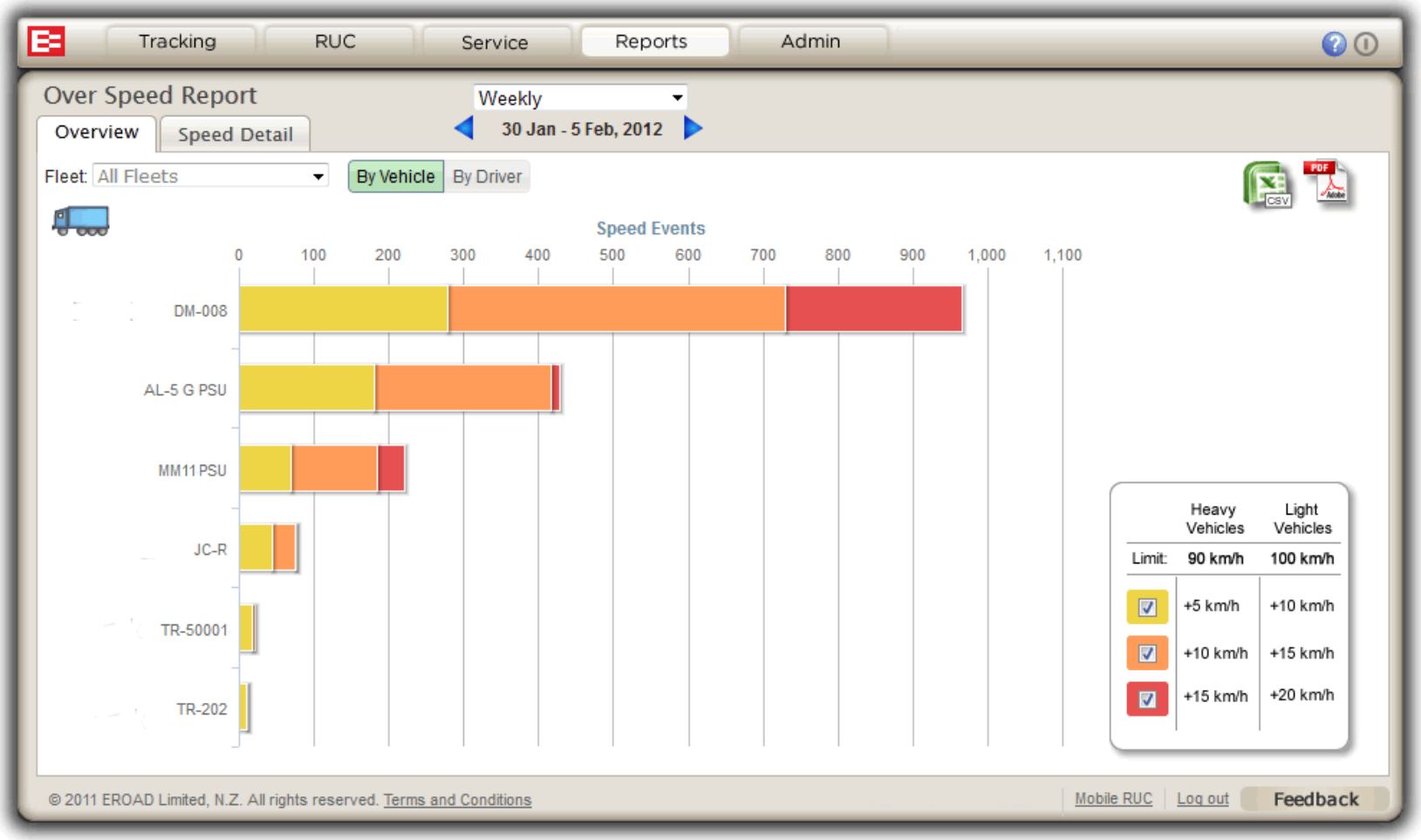
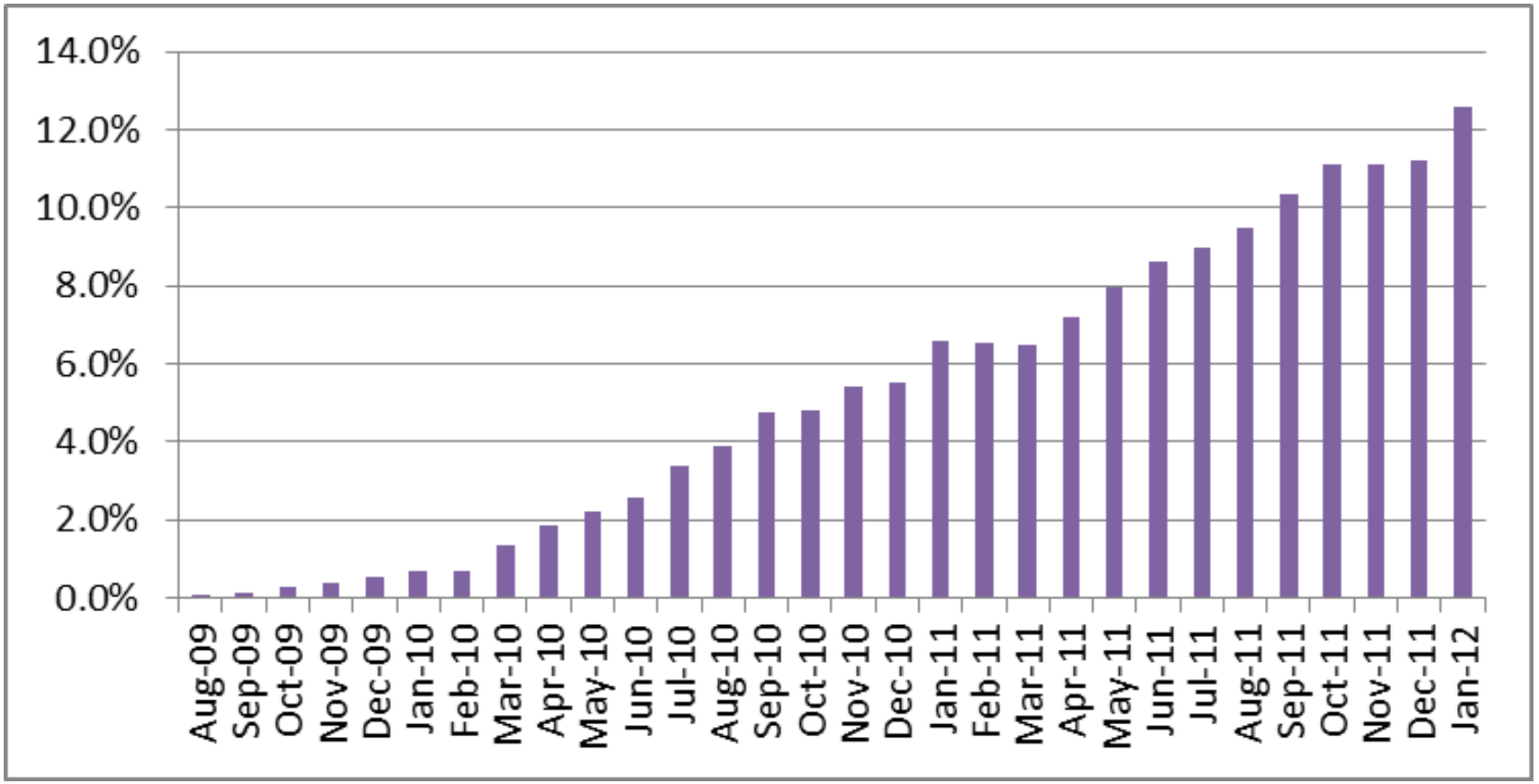
# Over Speed Report



# Client RUC – % of Revenue



# Client RUC Stars

"Using EROAD means we have more time to go fishing. We love it".

# Technology Lessons

1. GPS/Cellular tolling technology proven and cost effective.
2. OBU reliable and able to cope with extreme environmental conditions.
3. Security model detects and prevents fraudulent attack, and operable with degraded sensor data and poor cellular coverage.
4. Secure architecture able to support complex tariffs: time, distance, location, mass, emissions and dynamic congestion pricing.
5. Technology platform can support wide range of value-added services and 3rd party applications.
6. Scale and deployment can be readily achieved because no requirement for specialist roadside infrastructure.

# Policy Lessons

1. Contestable model encourages innovative and service orientated suppliers motivated by commercial opportunity.
2. Certification model minimises requirement for government to bear technology risks, or meet capital and operating costs.
3. Regulatory and commercial services can be delivered with same platform to lower agency and client costs.
4. Trusted 3rd party providers help overcome privacy concerns.
5. Hybrid system (paper/electronic) meets different user requirements (low km and foreign) and avoids big-bang implementation.
6. Overall system costs for electronic heavy vehicle charges estimated to be below 5.0% of revenues.

# Evolution and Challenges

1. Evidential technology can be extended to support enforcement, driver compliance, insurance, hazardous goods and livestock monitoring.
2. New Zealand light vehicle VMT well-founded but reforms required to improve compliance and reduce odometer related fraud.
3. Business case for electronic mileage-based fees for passenger vehicles problematic – revenues too low relative to costs. But…
4. Future requirements to recover infrastructure charges and shift to hybrid/electric fleet means car tolling inevitable.
5. More truck VMT schemes will contribute to development of an affordable and robust passenger vehicle tolling platform.
6. New Zealand institutional model may not be workable in some jurisdictions – private providers might avoid high risk clients.

# Thank You

**Brian Michie**
SVP/Global Business Development
brian.michie@eroad.com