



OFFICE FOR COMMUNICATIONS
PRINCIPALITY OF LIECHTENSTEIN

Factsheet Open Access Fibre Rollout Liechtenstein

Liechtenstein - Country Facts



- [Liechtenstein](#) was founded in 1719.
- Area: 160 km²; 11% is settlement area.
- Inhabitants: 39'680 (2022EOY).
- Liechtenstein is not a member of European Union (EU), but since 1995 together with Iceland and Norway a member of the European Economic Area (EEA) – relevant EU legislation needs to be transposed.
- Customs and currency treaty with Switzerland since 1923.

The Open Access Network - General Characteristics

The national power grid operator (Liechtensteinische Kraftwerke - LKW):



- is 100% owned by the state.
- installs, owns and operates the sole passive network infrastructure (i.e. duct, fibre, central offices) with national coverage.
- is a wholesale-only provider of passive network infrastructure to downstream operators (including the former incumbent Telecom Liechtenstein AG) on a regulated, i.e. cost-oriented and non-discriminatory basis.
- does not offer any active downstream services to wholesale or retail users
- therefore, has no incentive to discriminate, very much unlike as any regulated, vertically integrated incumbent who has to provide passive infrastructure to downstream competitors as well as to its own retail arm.
- has civil engineering synergies with the electricity grid.
- as a power grid operator, is used to long investment cycles (up to 100 years), expects (only) «utility returns» and therefore also has an ideal profile as an operator of passive telecommunications infrastructure.

The Fibre Network – Technical Characteristics

- Future proof P2P-FTTH (Point to Point – Fibre to the Home) architecture with the highest quality standards of rollout – no anticompetitive P2MP/GPON (Point to Multi Point / Gigabit Passive Optical Network) network structures implying shared use of fibres, which are designed to foreclose open access and competition. This means, that the Service Providers are completely free in their service offerings and technology chosen.
 - From the central office to the buildings the fibres are provisioned by LKW.
 - The (vertical) cabling inside the buildings is the responsibility of building owners. In the FTTB construction and migration phase the cost of up-grade to fibre cabling was typically covered by service providers in an exchange for a two-year contract.
- ⇒ The cabling complements the P2P-FTTB to a P2P-FTTH network.

- Laying of fibre cables is nearly exclusively in ducts - very few poles in the alpine areas.
- Every operator has full control over the value chain. The (near) absence of active wholesale products was a boon during the COVID-19 lockdown – no network congestions or outages.
- 17 optical distribution offices provide access to approximate 26'000 apartments and business spaces - complete nationwide coverage.
- Full rollout – also in all rural areas – was completed in the second half of 2023.
- Mandatory decommissioning of the old access infrastructure: Copper and CATV networks are decommissioned typically within 12 months after connection of the building to the fibre network.

Regulation

Having incurred substantial set-up effort, very limited ongoing regulatory intervention is necessary. In October 2023, the regulatory authority (Office for Communications / Amt für Kommunikation - AK) set the [price and access conditions](#) for the infrastructure of LKW, applicable from 1 January 2024. These include i) access to the local access fibre ii) access to backhaul fibre iii) access to ducts iv) access to central office space and racks v) ancillary services.

Market and Market Effects

- LKW has lifted the barrier to market entry to a large extent, eliminating the «natural monopoly conundrum», as LKW is financing up-front the multi-million CHF invest for the passive network. This resulted in a (nearly) contestable market with a high number of active downstream operators:
 - Retail fixed («broadband») providers (private and business): 10+
 - Mobile service providers: 3 MNO + 1 MVNO (LIE +423 offers), 3 MNO (CH +41 offers)
- No subsidies of any sort were involved.
- No cost burdens caused by inefficient infrastructure competition in the local access.
- No designation of a universal service operator is necessary – universal access is a given.
- No digital divide – fibre is ubiquitously available, also in the alpine regions.
- Fixed Mobile Substitution is non-existent, as customers value the unique service experience of fibre-based products.
- Mandatory switch off and decommissioning of copper and CATV networks contributed to high competition, as every customer had to actively select an operator for the new fibre-based service.
- Offers and prices developed favourably, e.g. symmetric 8 Gbit/s of new fixed broadband market entrant for [CHF 39.90](#) per month.
- The LKW is winner of [European Broadband Awards 2022](#).

Liechtenstein is internationally unique –probably the only country where vertical separation via a passive open access network truly works and has created an exceptionally competitive market (>10 broadband operators for 40'000 inhabitants).

The Liechtenstein open access network shows how to maximise economic welfare by creating sustainable service competition. These real-life and tested experiences can be leveraged to other countries and the mobile market.

For questions please contact Silvio.Giorgetta@llv.li

Web links: [Telecommunications Statistics](#) - [EC success story FTTB July 2022](#) - [LKW FTTB offer](#) - [Regulation](#)