

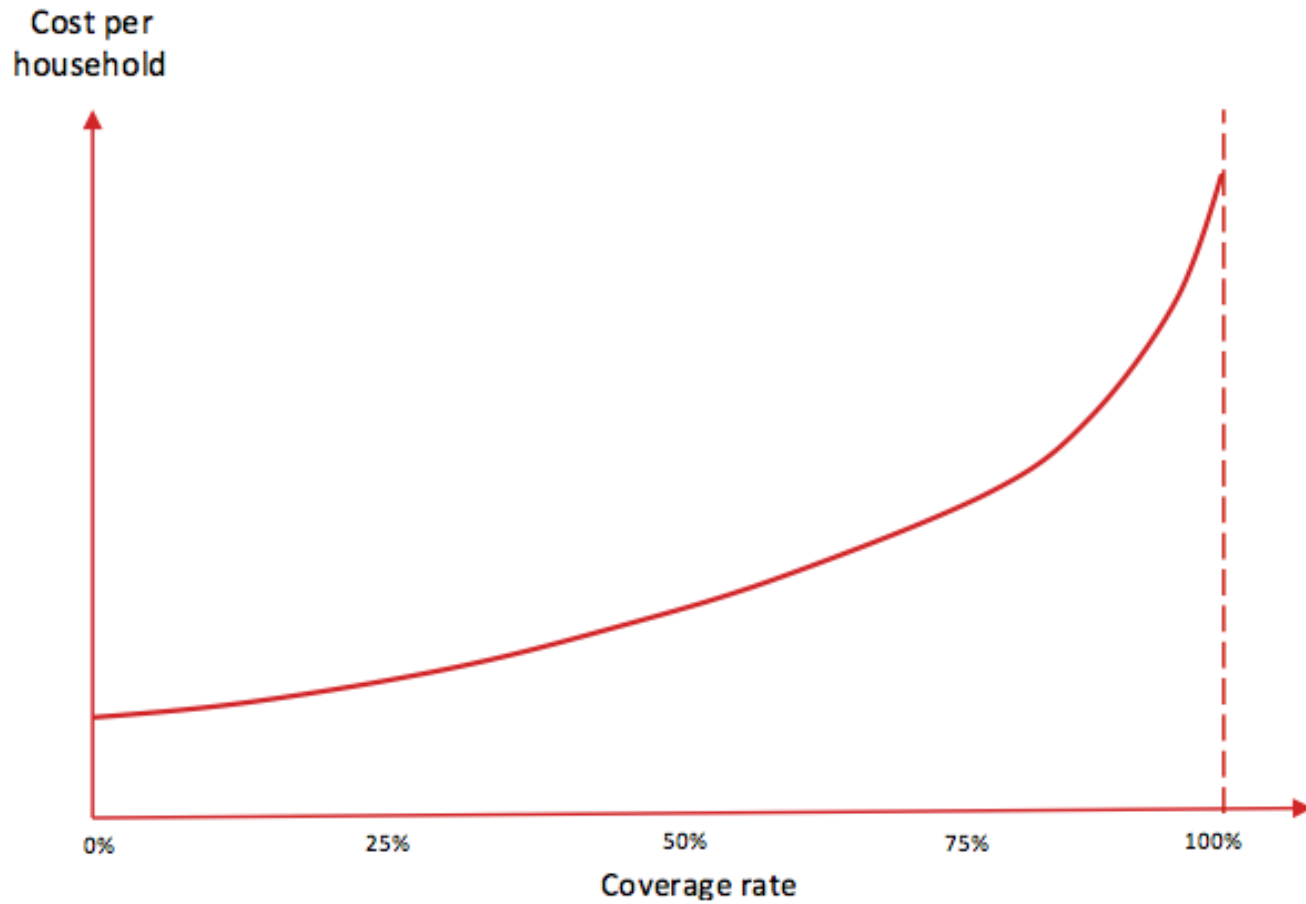
Solving the NGA Coverage Conundrum

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The poor track record of rural broadband policy

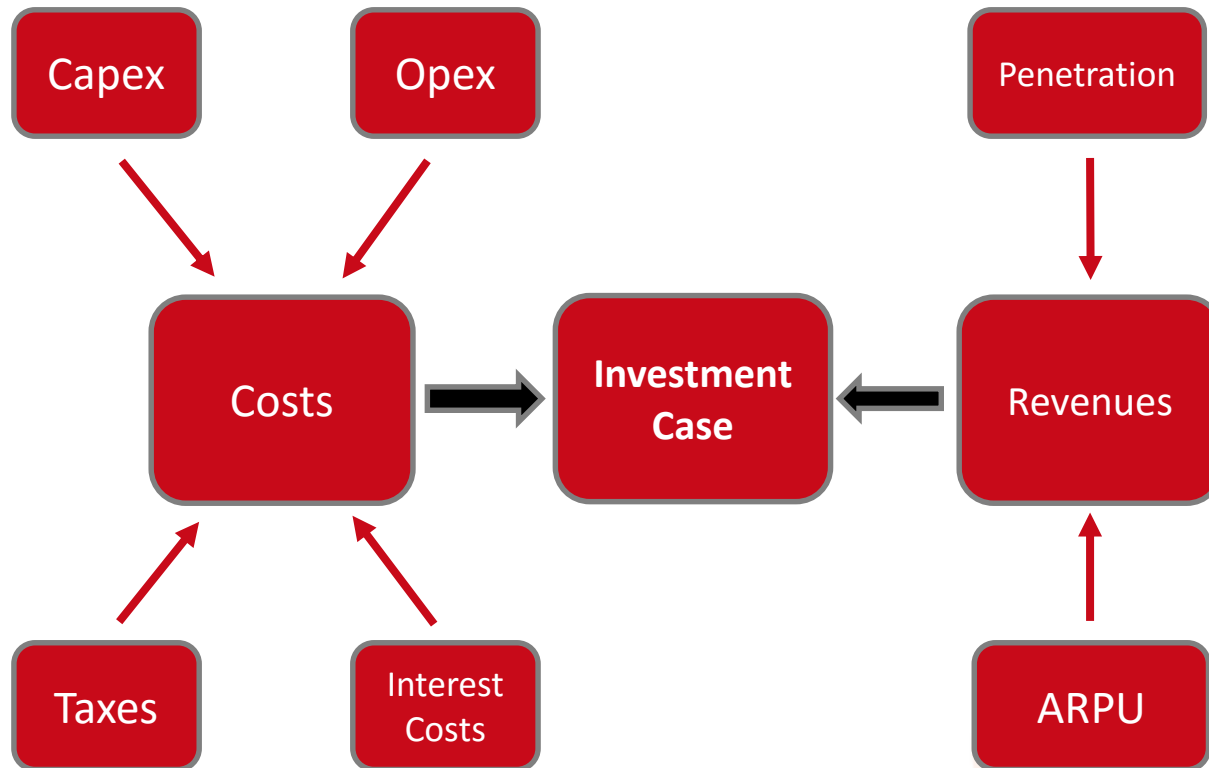
- There's one predominant model for rural broadband policy in developed countries: subsidize the incumbent.
- With the common acceptance that only FTTH is future proof, some incumbents have begun deploying in dense areas.
- They will only go to less dense areas if subsidized however.
- Our intuition is that subsidies are not about making an unprofitable deployment profitable, but about making an inadequate infrastructure investment feasible.
- The key problem: the true rural areas are not seeing any change.
- What if we looked at infrastructure solutions to an infrastructure problem?

The cost slope



Source: Diffraction Analysis

Modeling Greenfield FTTH Business Case



- What is the intrinsic FTTH coverage capability of a Vertically Integrated Operator (VIO) vs a Wholesale Network Operator (WNO) ?

Why FTTH and not FTTC or Cable ?

- Rural Broadband is a long-term issue.
- In our analysis we look at a 25 year timeframe
- All analysts and telco CTO agree that even if FTTC / Cable is a solution for the short term, 10 years from now FTTH will need to be deployed.
- Therefore any long-term rural broadband policy needs to examine FTTH as the only future proof solution.
- This is even more true if subsidies are considered as public money should not subsidize short term solution.

Calculating the Coverage Frontier

1

Cost Model

Establishes the average cost per home connected segmented per clusters of 5% population.

2

VIO Profitability Model

Based on cost to connect input and VIO business model, establishes the revenue and profitability per cluster.

WNO Profitability Model

Based on cost to connect input and WNO business model, establishes the revenue and profitability per cluster.

3

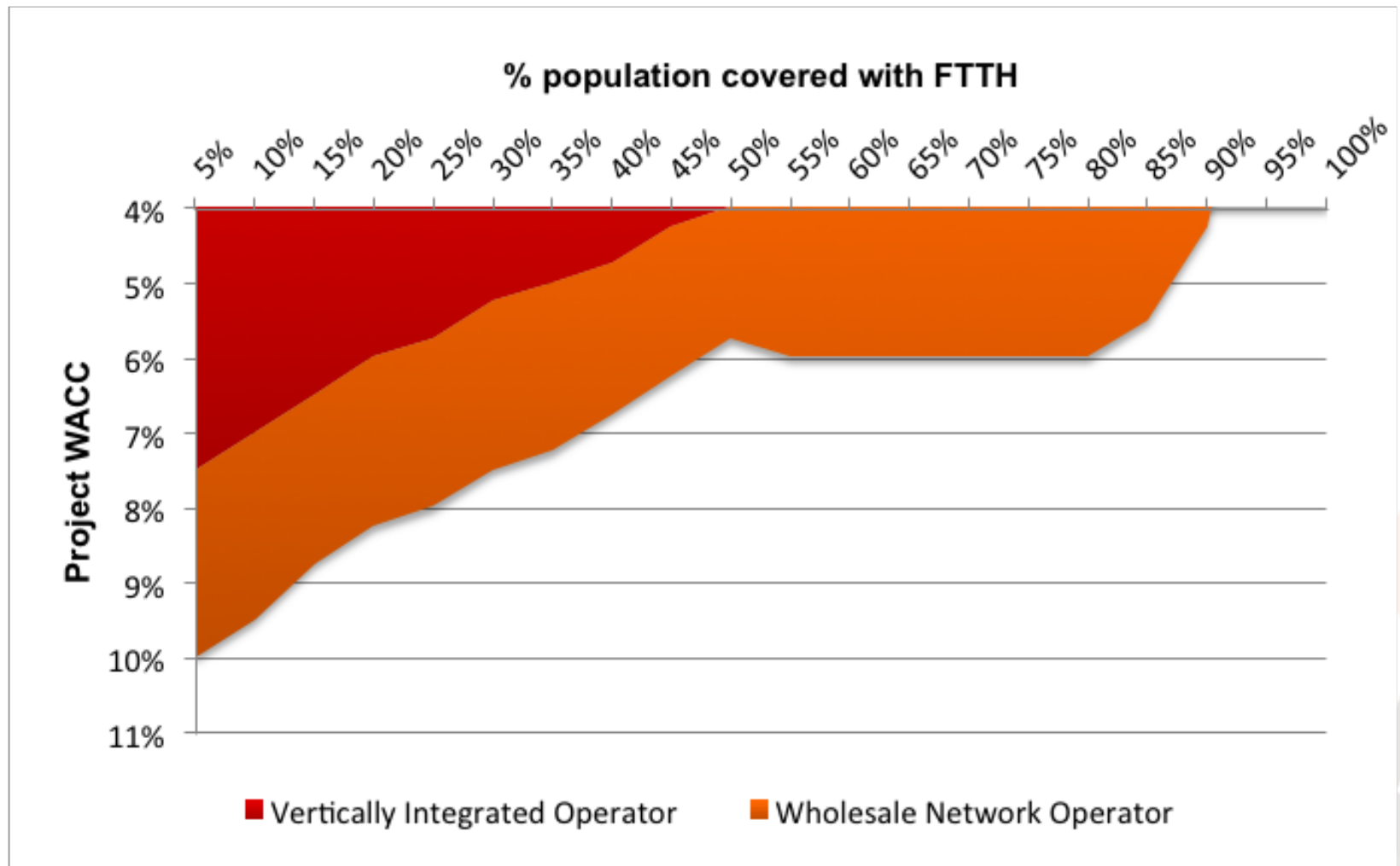
Profitability Mapping

For a range of risk profiles, maps the 'reach' of a profitable deployment

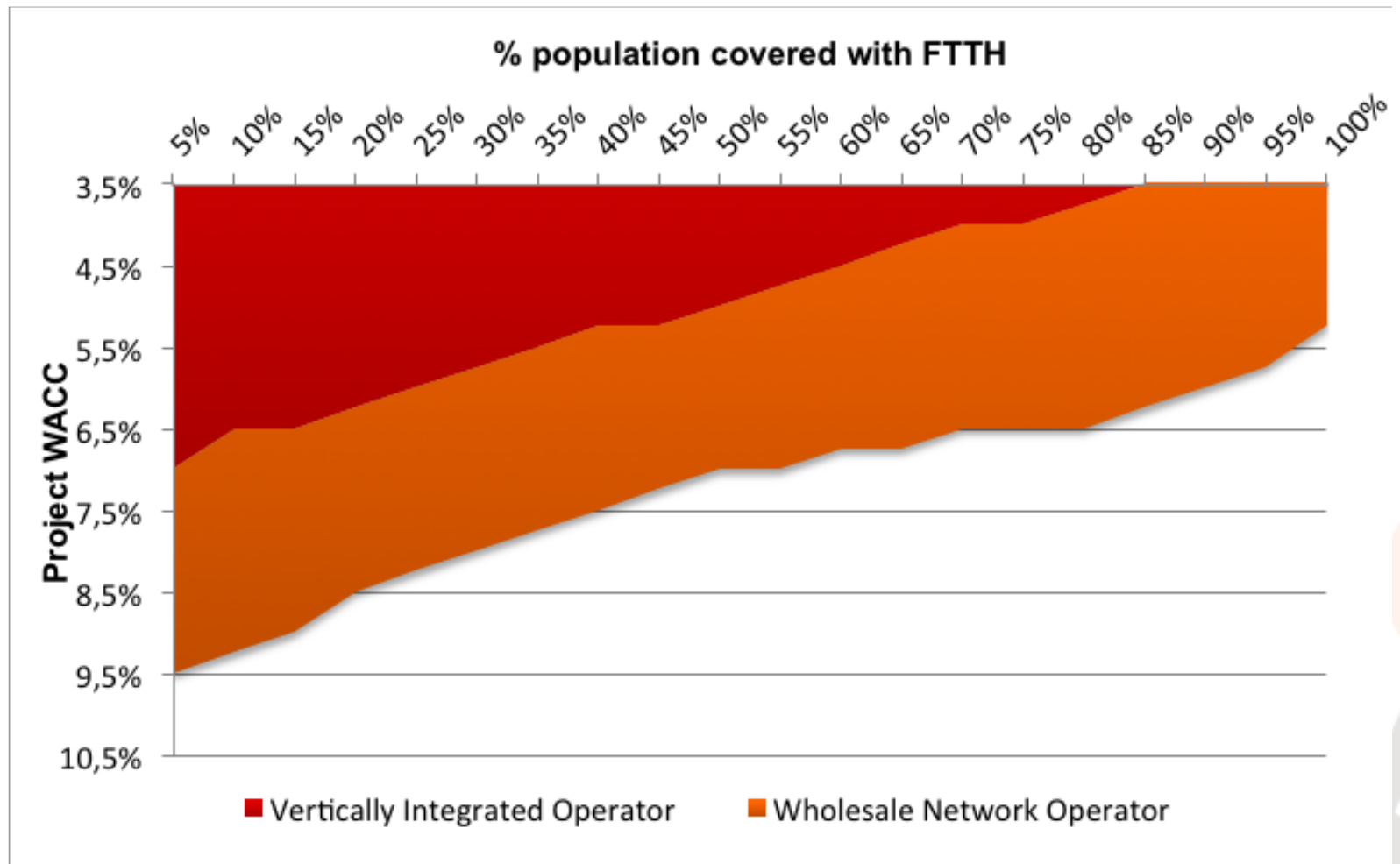
25 Years

+ Terminal Value

NPV positive cluster mapping



Zero overall NPV mapping










De-Risking aka. Lowering the WACC

- WACC (Weighted Average Cost of Capital) is often used in policy circles as a tool set by the regulator to determine regulated prices.
- In capital markets however it is first and foremost an objective assessment of the risk of a given project determined by investors based on their perception of said risk.
- Regulators and policy makers can lower the WACC by lowering the risk perception of the investors.
- There are various policy approaches to do so, but they don't work the same depending whether the model is VIO or WNO.

De-Risking VIO

- Lowering deployment costs → Increases Competition
- Increasing regulated prices → Decreases Competition
- Promote FTTC/VDSL → Not Future Proof
- Anchor Tenancy → Decreases Competition
- Social Tariffs → Increases Take-Up,
Decreases ARPU
- Market Consolidation → Decreases Competition
- Lengthening Regulatory Cycles → Hard to Anticipate



De-Risking WNO

- Lowering deployment costs  Increases Margins
- Increasing regulated prices  Decreases Competition
- Promote FTTC/VDSL  n/a
- Anchor Tenancy  Increases Take-Up
- Social Tariffs  Increases Take-Up,
Decreases ARPU
- Market Consolidation  n/a
- Lengthening Regulatory Cycles  Creates Revenue Stability

Changing the Regulatory Model

- Structurally Separated FTTH Infrastructure does not need public funding to achieve quasi-national coverage;
- In order for such a plan to work, the regulatory and policy model needs to change to a longer term view;
- Instead of regulating prices, WNO should see their profits regulated;
- That shift should be a quid pro quo in exchange for national coverage.
- Subsidies can then be considered to accelerate deployment or focus on the really hard to reach areas.

Thank You!

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The full report is available for download at:

<http://papers.ssrn.com/abstract=2794850>

Three Aspects of Structural Separation

Level Playing Field

Eliminate unfair advantages incumbents get from both owning and reselling infrastructure.

Retail & Business Services

Shareholder Value

Maximize shareholder value by offering focused companies to the financial markets.

Future Proof National Infrastructure & Wholesale Access

Allow/Push NetCo to invest for the long term.