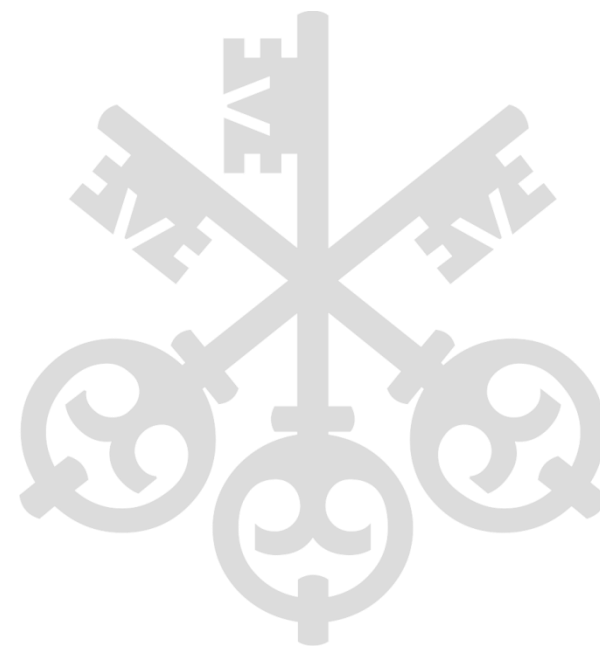


Infrastructure: Top Trends in 2020

Infrastructure 2020: cleaner and more connected

Declan O'Brien, Alex Leung
Infrastructure Research & Strategy



Infrastructure outlook 2020

Top trends 2020



Climate change and sustainability:

Global consumer-based movement to reduce carbon emissions. Corporations and governments now responding with green policies.



Next wave of investments:

Wave of new green investments In Europe more than just renewables. Next wave of investment will come in battery storage, EV charging and smart grid solutions.



Telecommunication investments continue to be attractive:

Debt and equity investors made over USD 80 billion of investment into telecommunication infrastructure since 2018 driven by the rapid growth in data

Top trends in 2020

Infrastructure Outlook



Infrastructure 2020:
cleaner and more connected

- | | | | |
|---|----------------------------|---|----------------------------------|
| 2 | Macroeconomic overview | 3 | Top three European market trends |
| 6 | Top three US market trends | 9 | Private infrastructure markets |

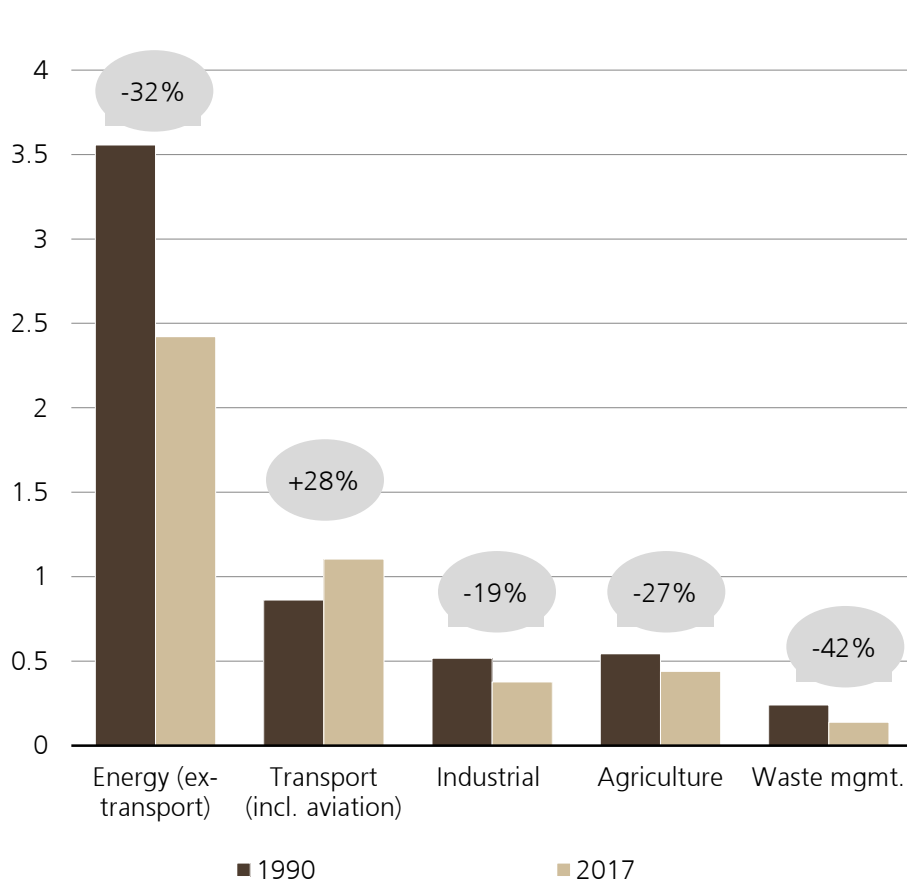


UBS Asset Management

European commission targets net zero by 2050

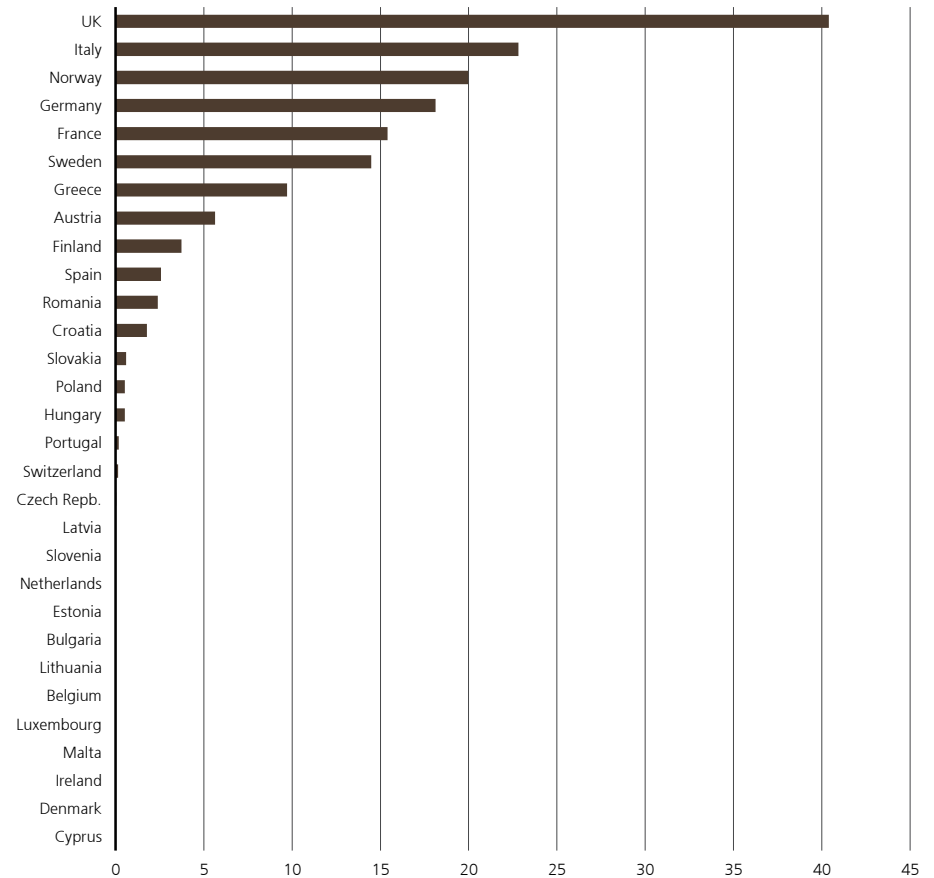
Energy has delivered significant reductions. What does the future hold for transportation?

EU emissions 2017 vs. 1990
million tonnes of carbon dioxide equivalent (Mt CO₂e)



Source: European Environment Agency, November 2018

Average aviation taxes per passenger
(EUR, total aviation taxes/ passengers)

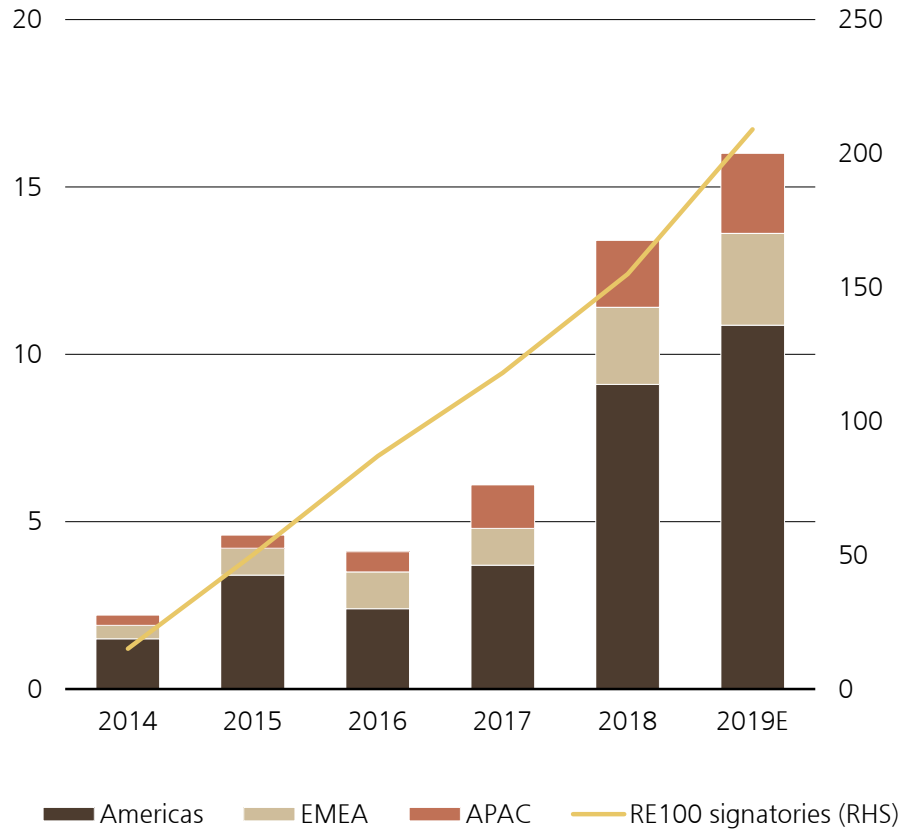


Source: Draft European Commission (leaked) study on aviation taxes, 2018

Broad-based demand for clean energy transcends partisan politics... although oil and gas in the US still has its place

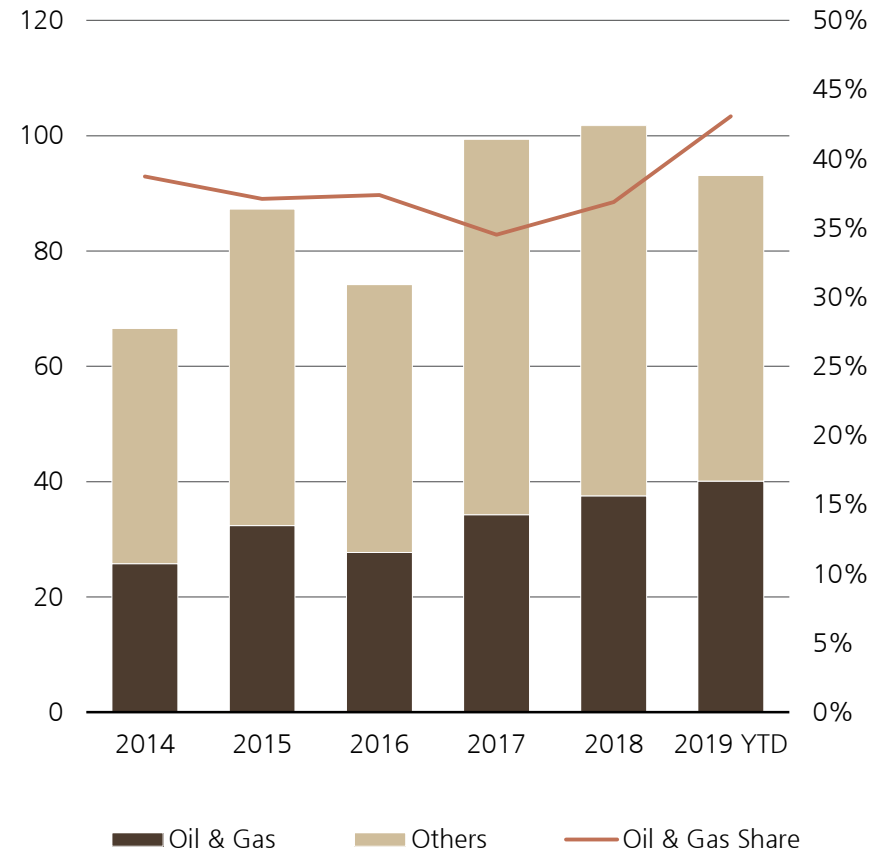
Renewables and fossil fuels are not mutually exclusive in the US... although renewables face fewer regulatory risks

Renewables corporate PPAs signed and number of RE100 signatories
Gigawatts (GW) for PPAs (LHS); number of signatories (RHS)



Source: Bloomberg, Greentech Media, RE100, November 2019

North America infrastructure deals (\$B)

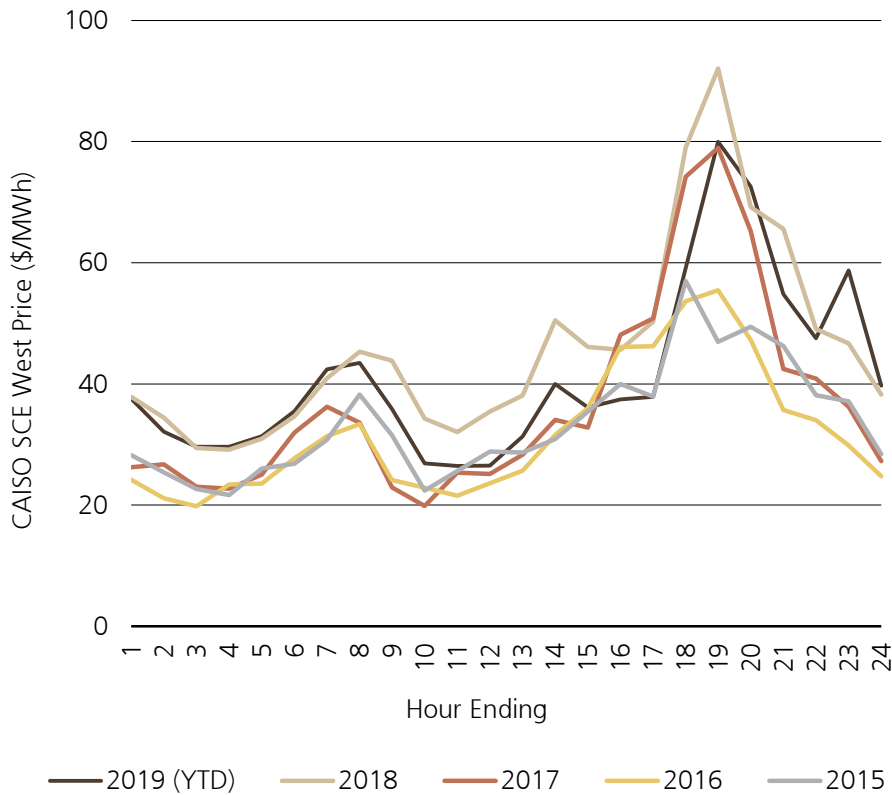


Source: Inframation, November 2019

Energy: the case for battery storage

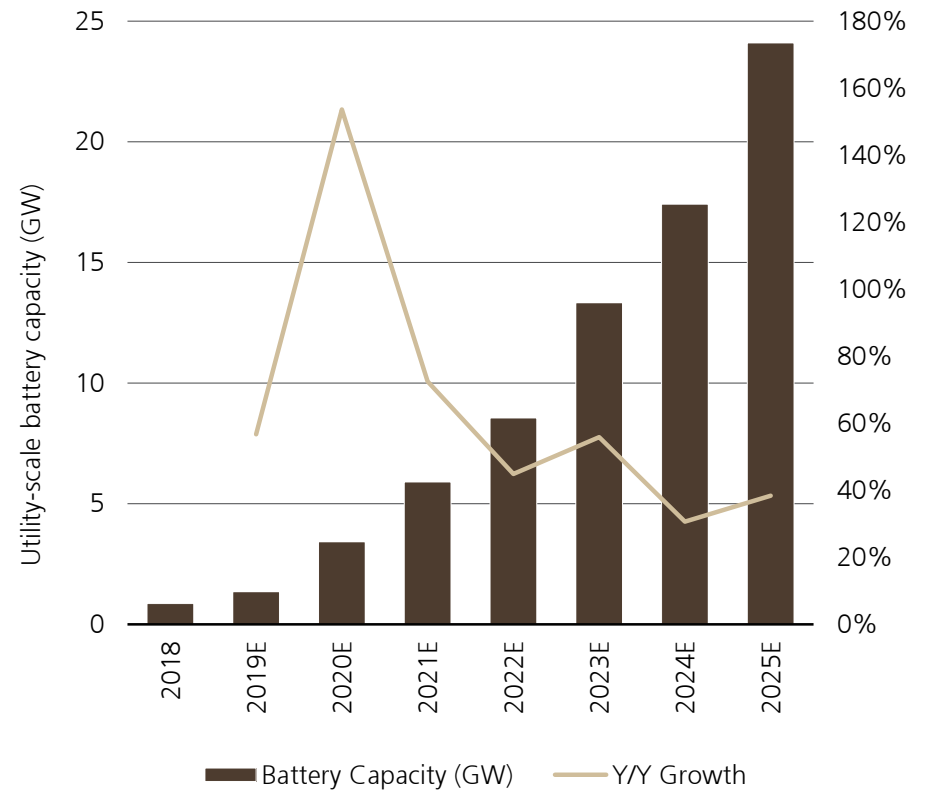
Renewable energy creates significant intraday electricity price volatility, benefitting batteries

California's "Duck Curve" has become the poster child for the price volatility that renewable energy creates



Note: Based on South California Edison West real-time prices
Source: Bloomberg, CAISO, November 2019

Utility-scale batteries will see significant growth in the next five years in order to capture this arbitrage opportunity

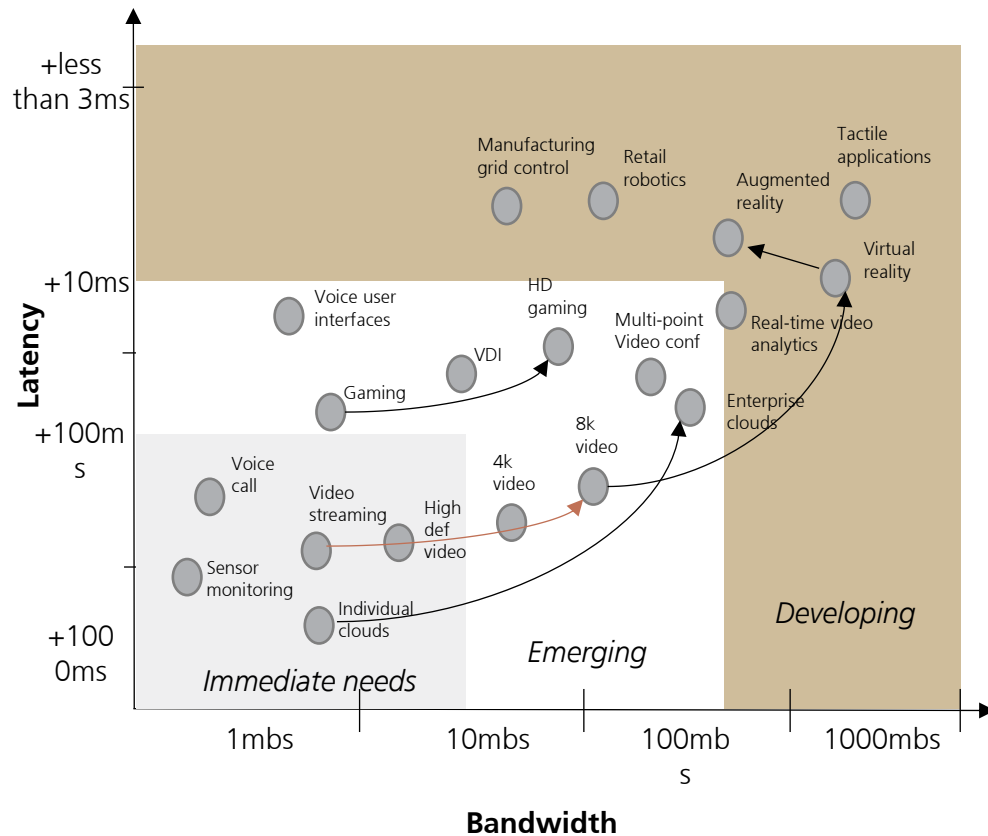


Source: Bloomberg, EIA, July 2019

Next generation of devices fueling capacity requirements

This capacity shortfall is creating opportunities for infrastructure investors

Next generation of devices and applications will require higher bandwidth and lower latency



Source: ADC consulting group, edited by UBS Asset Management, Real Estate & Private Markets (REPM), August 2019

Data related activity per minute

Spotify	750,000 songs
America	3.1 million GB of internet data
Netflix	97,222 hours of video
Tinder	6,940 matches
Weather channel	18 million forecast requests
Global population	By 2020 est. 100mb per person

Source: Domo: Data never sleep 6.0, June 2018

Many countries using existing spectrum to launch 5G

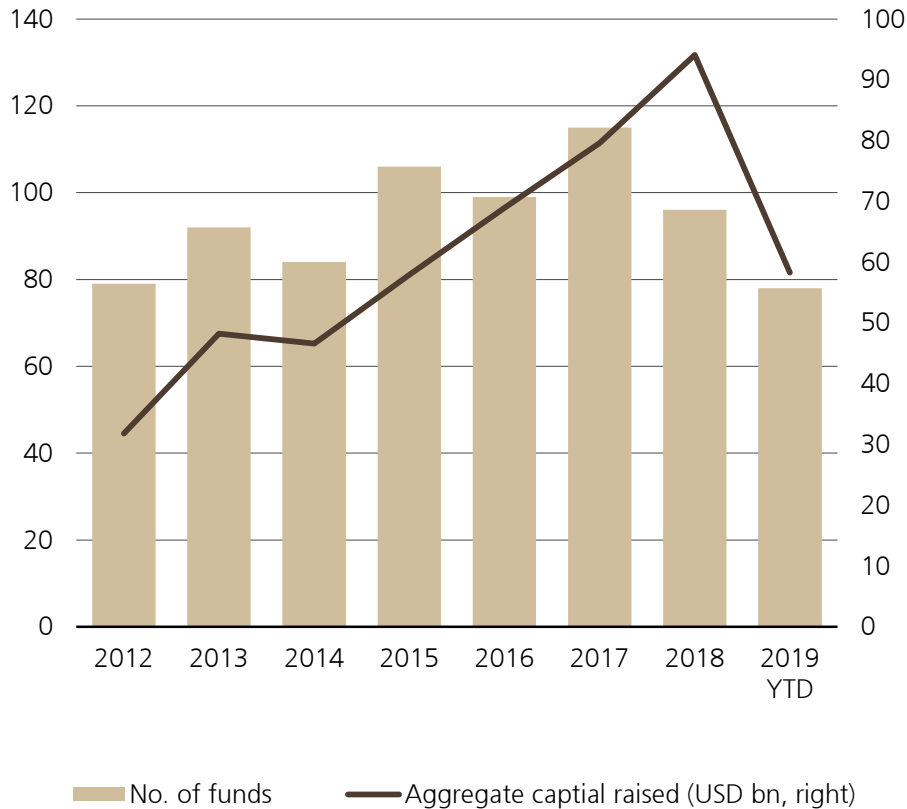
- Plenty of hype around 5G and the risks to fibre networks. In most markets, mobile operators are using existing mobile spectrum so speeds and capacity will still be hugely inferior to fiber, especially as penetration grows
- Risks higher in countries with very low data usage at home and poor existing fibre network (eg. Austria)
- Early teething issues with 5G (eg. South Korea), but coverage will only improve over time
- Owners of infrastructure assets should be factoring some cannibalisation from 5G into business plans, but in many countries the risk should not be substantial. 5G may also bring a revenue generating opportunities for fiber operators



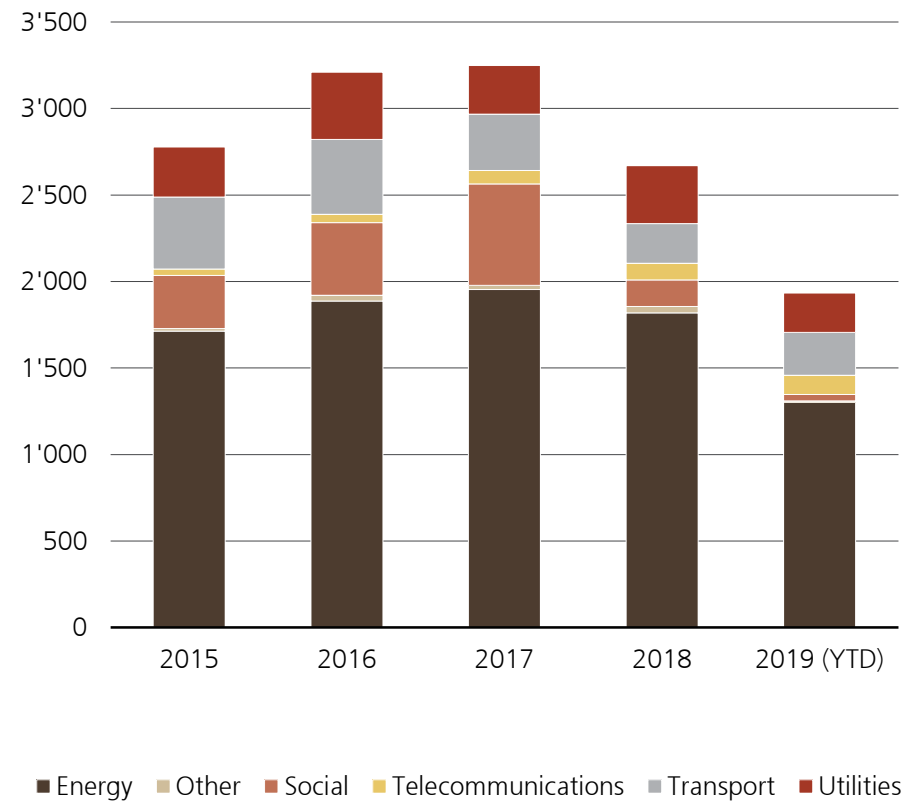
Strong flows, but fundraising set to fall short of 2018 highs

Strong performance of the asset class combined with continued low rates environment supporting trend

Record fundraising in 2018 – USD, billion (funds raised)



Global investment by sector - Annual (deal count)

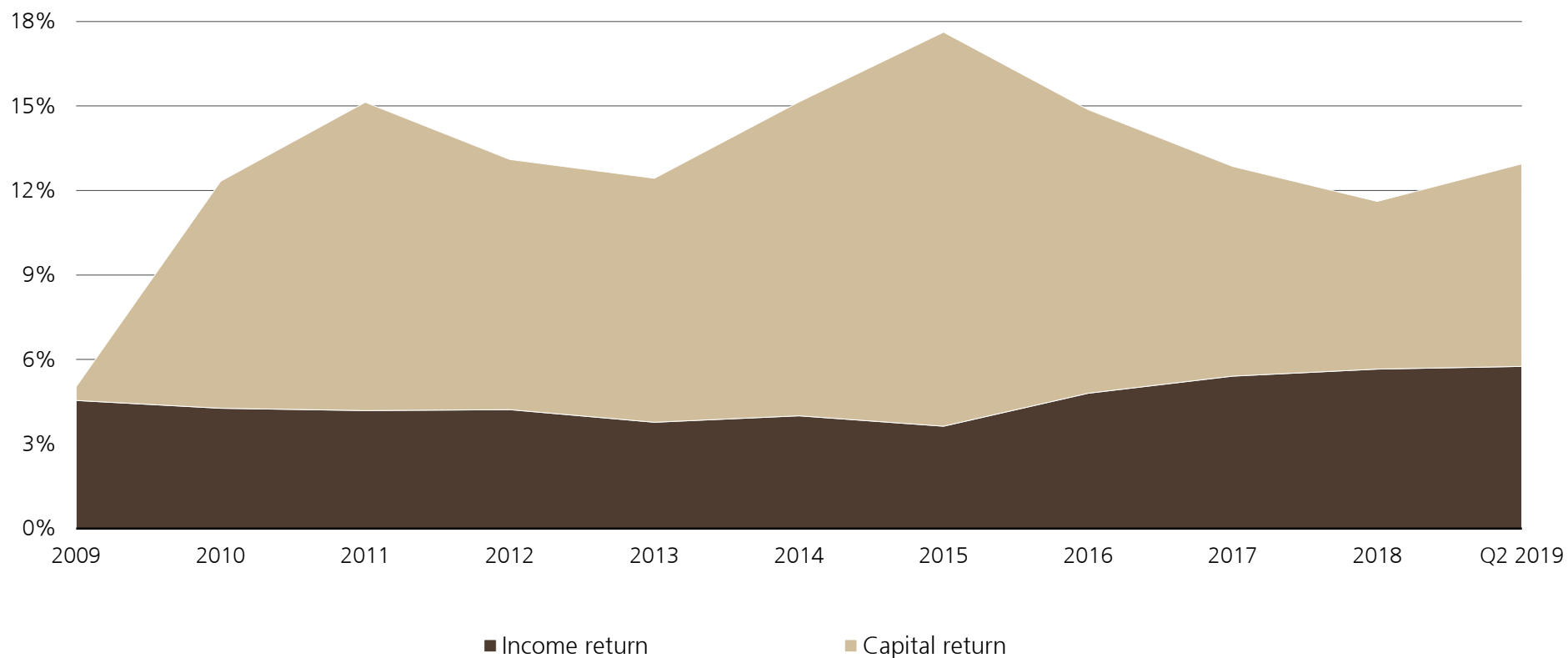


Source: Preqin, November 2019

Continued strong performance of asset class

65% of returns from capital growth over the past five years

Infrastructure equity returns (gross, local currency, %)

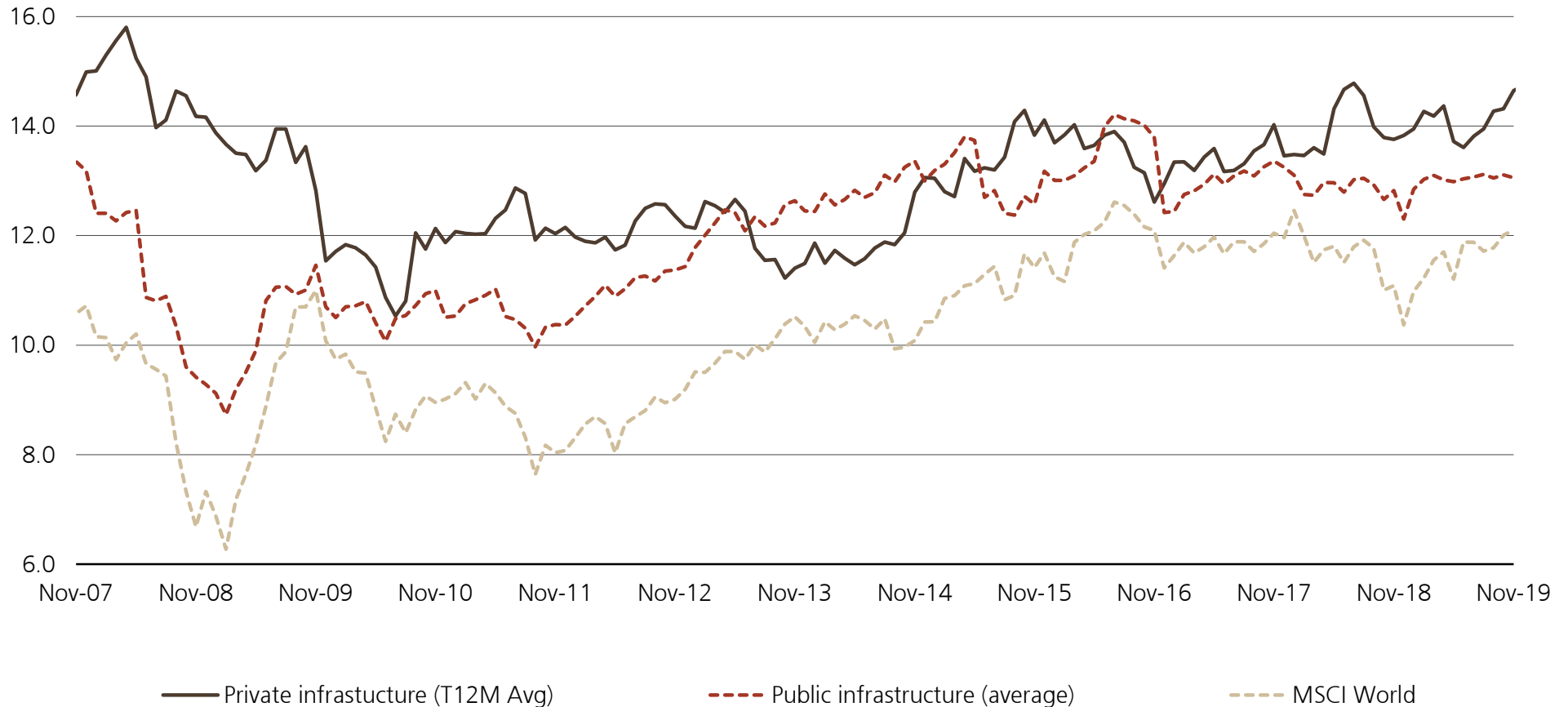


Sources: MSCI Global Quarterly Infrastructure Asset Index, June 2019

Note: Past performance is not a guarantee for future results.

Infrastructure equity valuations showing late-cycle signals

EV / EBITDA at 2007 levels but base rates circa 3% lower



Sources: UBS Asset Management Proprietary Database; Mergemart, Infranews; Infrastructure Journal, Infrastructure Investors; Bloomberg, November 2019

Infrastructure offering at UBS-AM



Infrastructure as an asset class

Growing asset class with attractive characteristics

Infrastructure characteristics

Stable and long-term cash flows from the **operation** of infrastructure assets

Essential assets with **low correlation** to economic cycles

Most infrastructure assets benefit from **inflation protection**

Infrastructure is an established asset class within private markets capturing **illiquidity premium**

Investor objectives

Ideal for **long-term** asset liability matching

Strong risk-adjusted return component with recurring **yield** to match liquidity needs

Effective **portfolio diversifier** compared to other traditional asset classes

Sector focus

Energy and utilities



Transport



Communication



Social infrastructure and PPPs

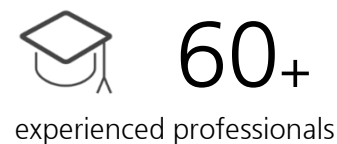


Source: UBS Asset Management, Real Estate & Private Markets (REPM); September 2019

UBS-AM, the powerhouse for infrastructure investments

UBS-AM combined direct and indirect Infrastructure businesses

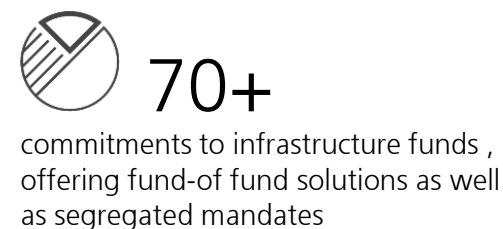
Combined key facts



Direct Infrastructure key facts



Multi-Manager Infrastructure key facts



Source: UBS Asset Management, Real Estate & Private Markets (REPM); September 2019; Data as of 30 June 2019;
Notes: **1.** Scores based on 2019 GRESB Assessment and UBS Asset Management, Real Estate & Private Markets (REPM)

Delivering the right solutions

Dedicated debt, equity and multi-manager strategies

Infrastructure

Debt

European focused platform and experienced team with the ability to source, structure and monitor positions specializing in middle-market and complex transactions

- **Private debt** exposure via direct infrastructure investment
- **Pick-up in return** with attractive risk profile compared to comparable listed corporate bonds¹
- **Direct lending**: ability to structure deal replacing banks
- **ESG score card** for every investment
- Lower risk is reflected in **preferential capital treatment under Solvency II**²

Equity

Global traditional core / core+ global³ infrastructure direct investment offering focused on the small- to middle-market deal space and assets with strong, stable cash flows

Regional Swiss Clean Energy track-record in partnership with external Investment Manager

- Generating majority of **return from operating income** – less reliant on capital growth
- Proven **active asset management**
- Strategy in line with **team's experience** and track record – North America and Europe main focus
- **Sustainability** integrated into investment process and asset lifecycle
- Additional mandate solutions and commingled funds for **renewable energy and supply infrastructure with focus Switzerland**

Multi-Manager

MM-INFRA offers institutional investors a **one stop solution to access a global diversified infrastructure** portfolio focusing on brownfield infrastructure assets generating long-term stable, cash flows

- Investments with leading **external infrastructure fund managers** on a global basis in a certain **region, sector or niche**
- Investing in **primary funds, secondary transactions and co-investments**
- **Access** to highly sought after funds and **lower fees** through economies of scale
- Offering tailor made **mandates** as well as **commingled fund** solutions



For more information please visit:

- **Goto/aiif3** - <https://intranet.ubs.net/en/asset-management/client-coverage/institutional-client-coverage/institutional-client-coverage-toolkit/infrastructure-equity-archmore.html>
- **Goto/appia** - <https://intranet.ubs.net/en/asset-management/sales-priorities/institutional/strategies/appia-iii.html>

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