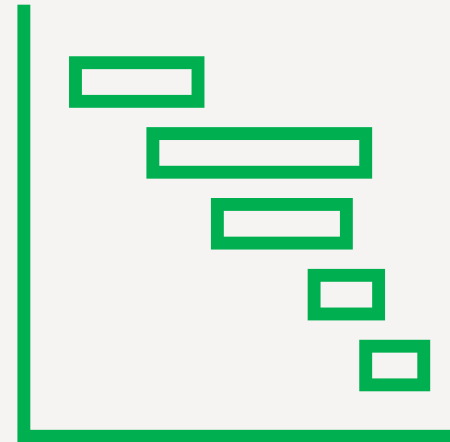


# Experience in developing sustainable wastewater services

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# Agenda

- > Some steps towards sustainable water and wastewater services
- > Lesson 1: If sustainability, financing is well in place
- > Lesson 2: If sustainability, investments are based on Asset Management
- > An example. Investment planning, Herning Vand



# Five steps towards sustainable water and wastewater services

- › Legal reform ensuring, among others, protection of property rights and clear division of powers and responsibilities of the utility vis-à-vis the municipality (in case of public owned utility)
- › Regulatory reform creating national government bodies overseeing the sector (e.g. tariff setting authority) and facilitating policy dialogue (e.g. involvement of water associations in policy making)
- › Tariff reform introducing tariffs that cover at least operating and financing costs, proper maintenance costs and (most of) depreciation – with a view to affordability (specially designed support programs and measures targeting the poor may be introduced; low tariffs is a no go)

- › Organizational changes at utility level within selected departments (e.g. accounting, contract and IT departments), including revised job descriptions, new work procedures and task flows, as well as new appointments – and accompanying skills upgrading (e.g. training in new IT management information systems)
- › Increased focus on asset management – at all levels, but, especially, at utility level. Know your assets, make a maintenance plan, as well as an investment plan

Tariff reform and asset management are key

# Lesson 1: If sustainability, financing is well in place

- > All investments are financed by primarily loans taken by the water company approved by the municipality
- > All loans have to be repaid by water tariffs
- > The water company does not receive any subsidies for neither operational expenditures nor capital expenditures – all financed by tariffs
- > Tariffs are regulated by the central regulatory authority, who restricts the increase in tariffs
- > The central regulatory authority forces the water company to operate more efficiently by imposing a limit to what can be received in income in a given year

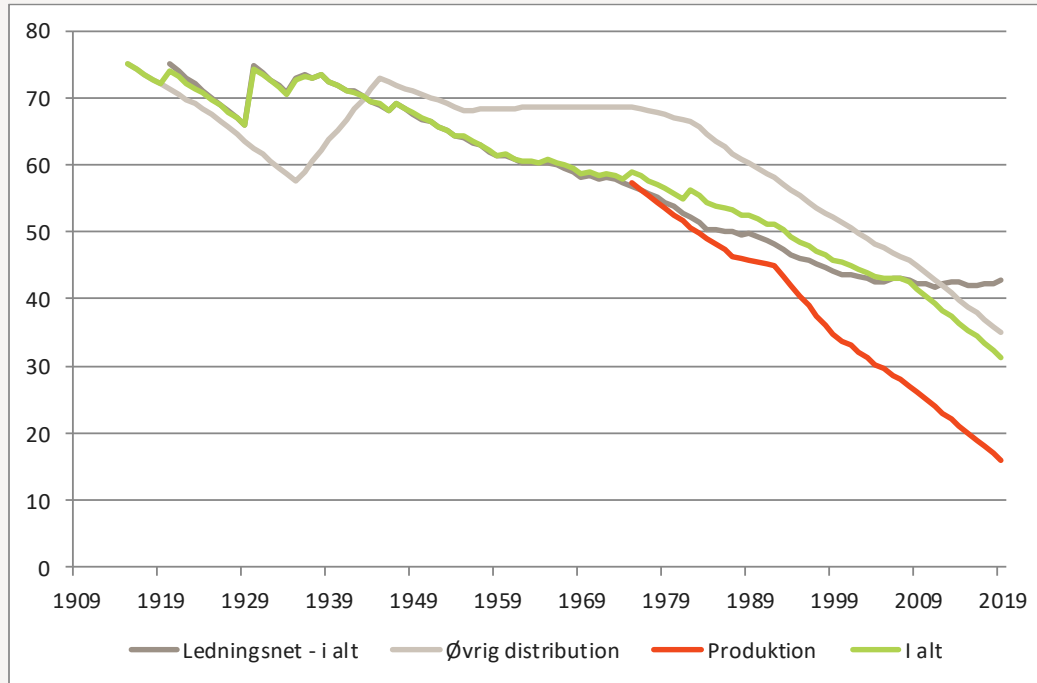
## Lesson 2: If sustainability, investments are based on Asset Management

- › Investment decisions are based on financial calculations of investment projects (NVP, IRR, EIRR)
- › Rehabilitation investments in replacement of existing assets are based on an asset register or an Asset Management System
- › In the Asset Management System all water assets are registered
  - › All assets are registered based on the year of establishment
  - › Risk parameters are attached to the status of the asset based on regular inspection
- › Given the age of an asset the asset needs replacement, when it reaches the lifetime of the asset
  - › The age-based assessment is combined with the risk assessment of the assets determines the timing of the asset replacement

# An example: Investment planning, Herning Vand

- › On a regular basis (every 5-10 year) the utility prepares an investment plan
- › This investment plan captures the rehabilitation investment (age/risk-based) of the company assets. But it also captures the proposed new investments
- › Within the same interval the utility analyses the appropriateness of the current WWTP structure
  - › Is the present structure the most appropriate or should several WWTPs be merged into a smaller number but having a larger treatment capacity?
  - › This exercise is also to save money from the consumers and to deliver the best service to the public as well as to the environment

# Asset degradation, Average age of asset lifetime

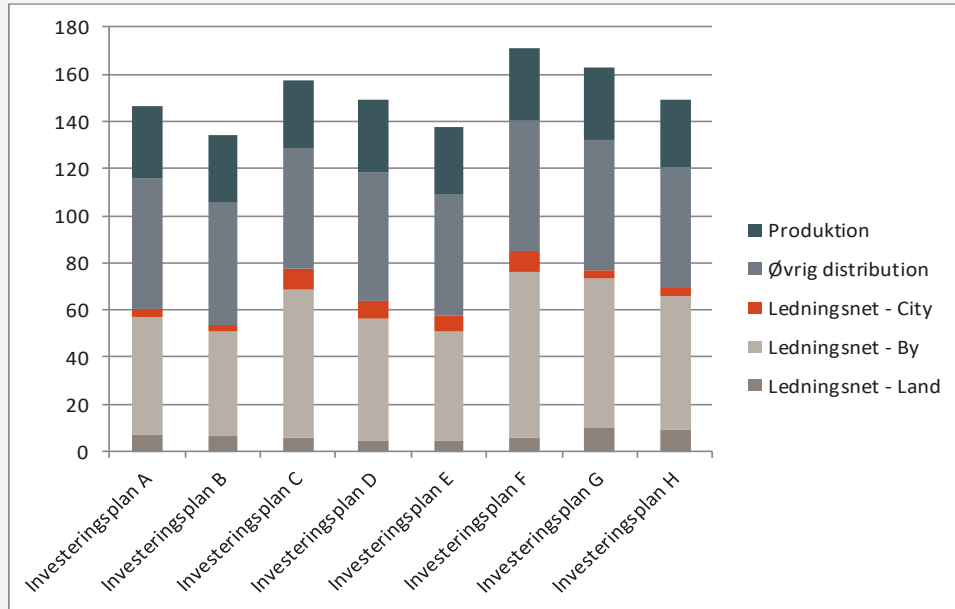


## Legend

- > Pipes, total
- > Other distribution
- > Production
- > Total



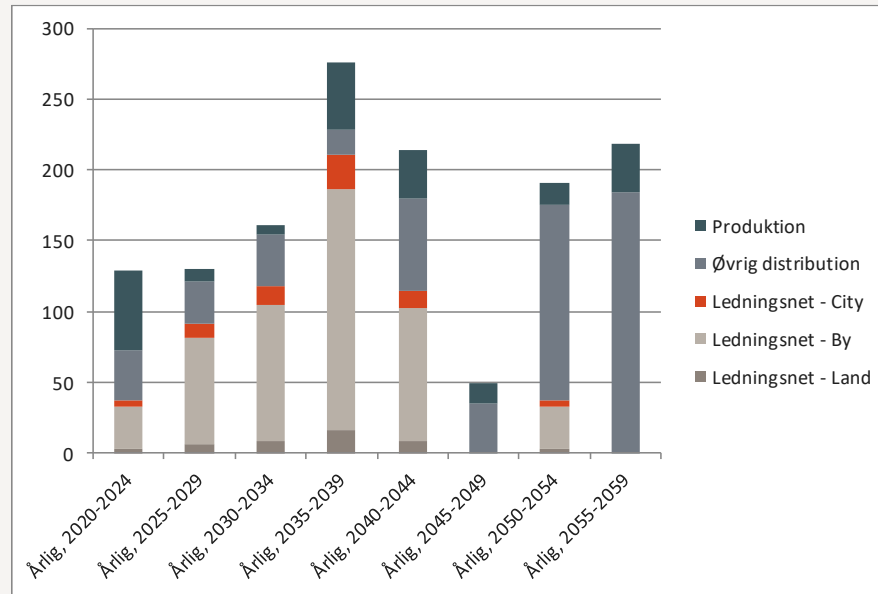
# Annual (annualized) investment costs over a 40 years period in eight different investment scenarios, MDKK



## Legend

- > Production
- > Other distribution
- > Pipes, City
- > Pipes, Town
- > Pipes, Rural

# Annual investments in five-year period intervals, MDKK (Investment plan C)



## In sum

- > Make tariffs right and
- > ... focus on Asset Management
- > ... while introducing and implementing legal reforms, regulatory reforms and organizational changes (at utility level)
- > If so, sustainable wastewater services will happen irl (but not overnight...)

