

National plan for revision of licenses in Sweden

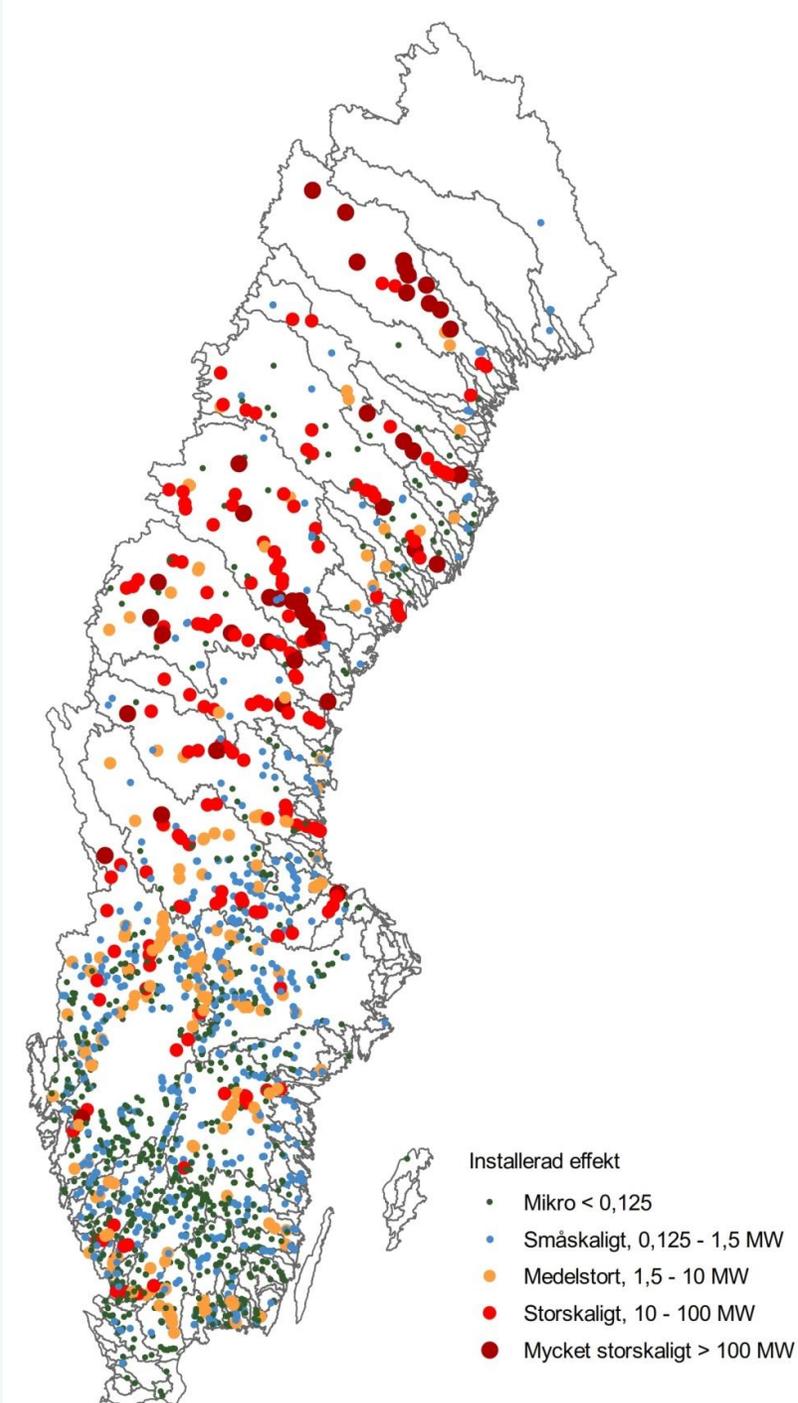
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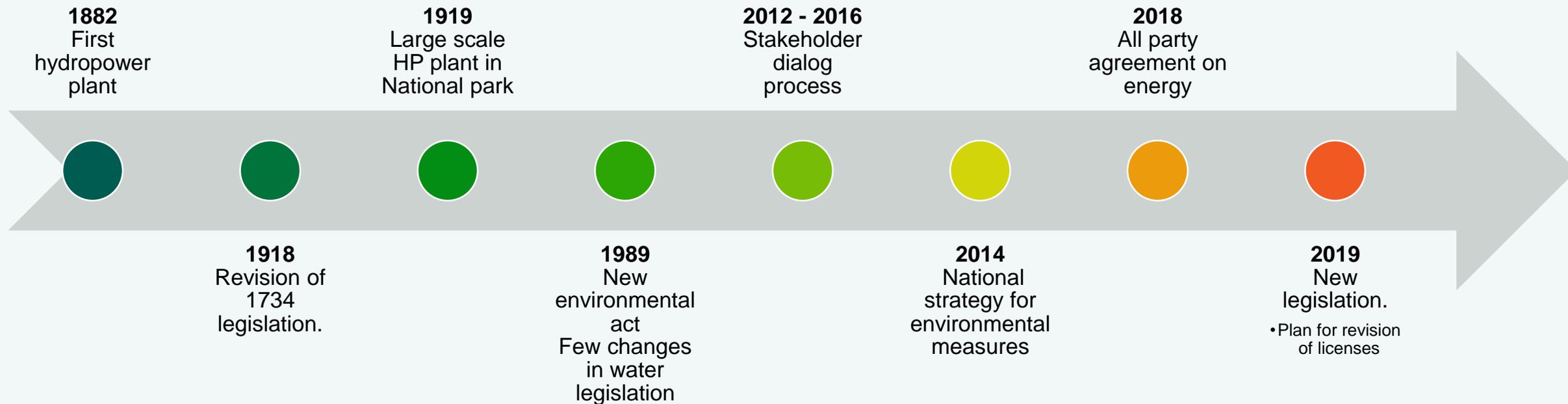
Johan Kling, Agency Strategist

The Swedish hydropower

- Initiated in 1882 but mechanical hydropower has been used since year 1130.
- Swedens first environmental law is related to hydropower from year 1228.
- Total 16 700 MW in 2101 HP plants.
 - 203 HP plants above 10 MW
 - 187 HP plants mellan 1.5 till 10 MW
 - 1600 hydropower plants below 1.5 MW and 1000 below 1 MW.
- Yearly production: 65 TWh
- 94 % of the production in 10 % of the plants.
- Almost all regulatory power in 250 plants and dominated by 75 plants

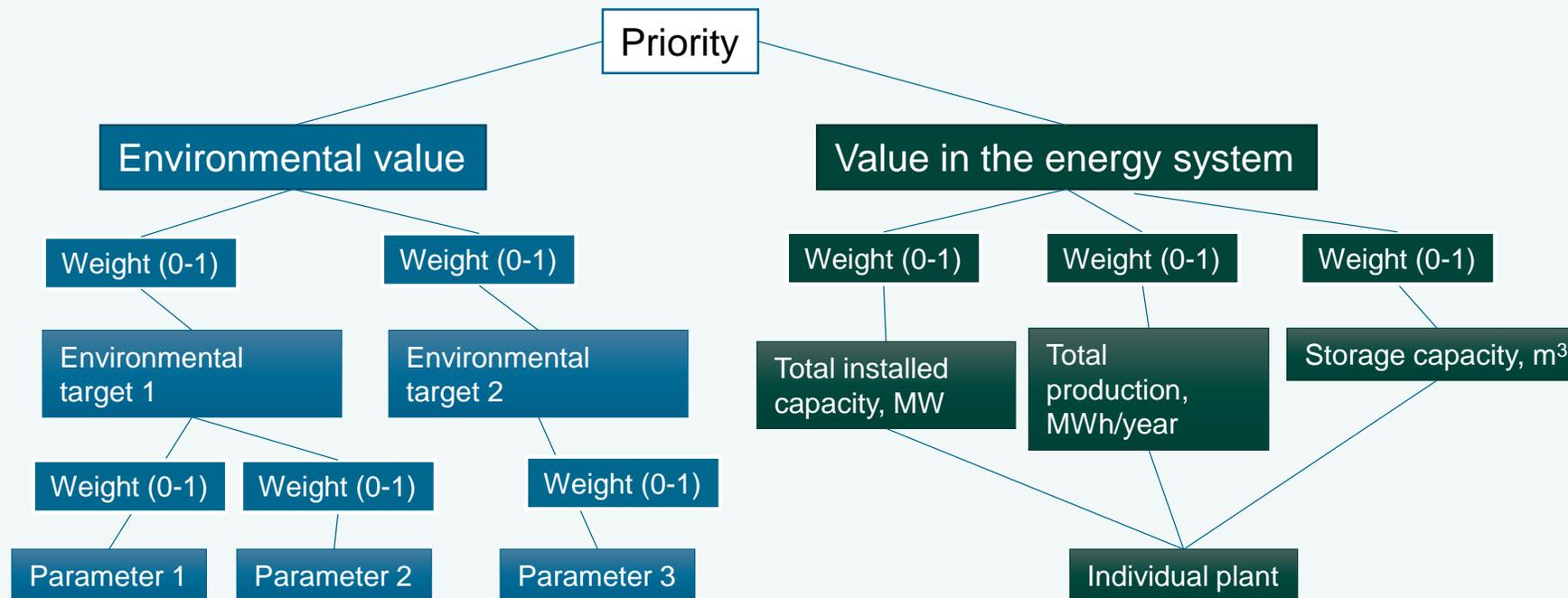


The time line for Swedish hydropower



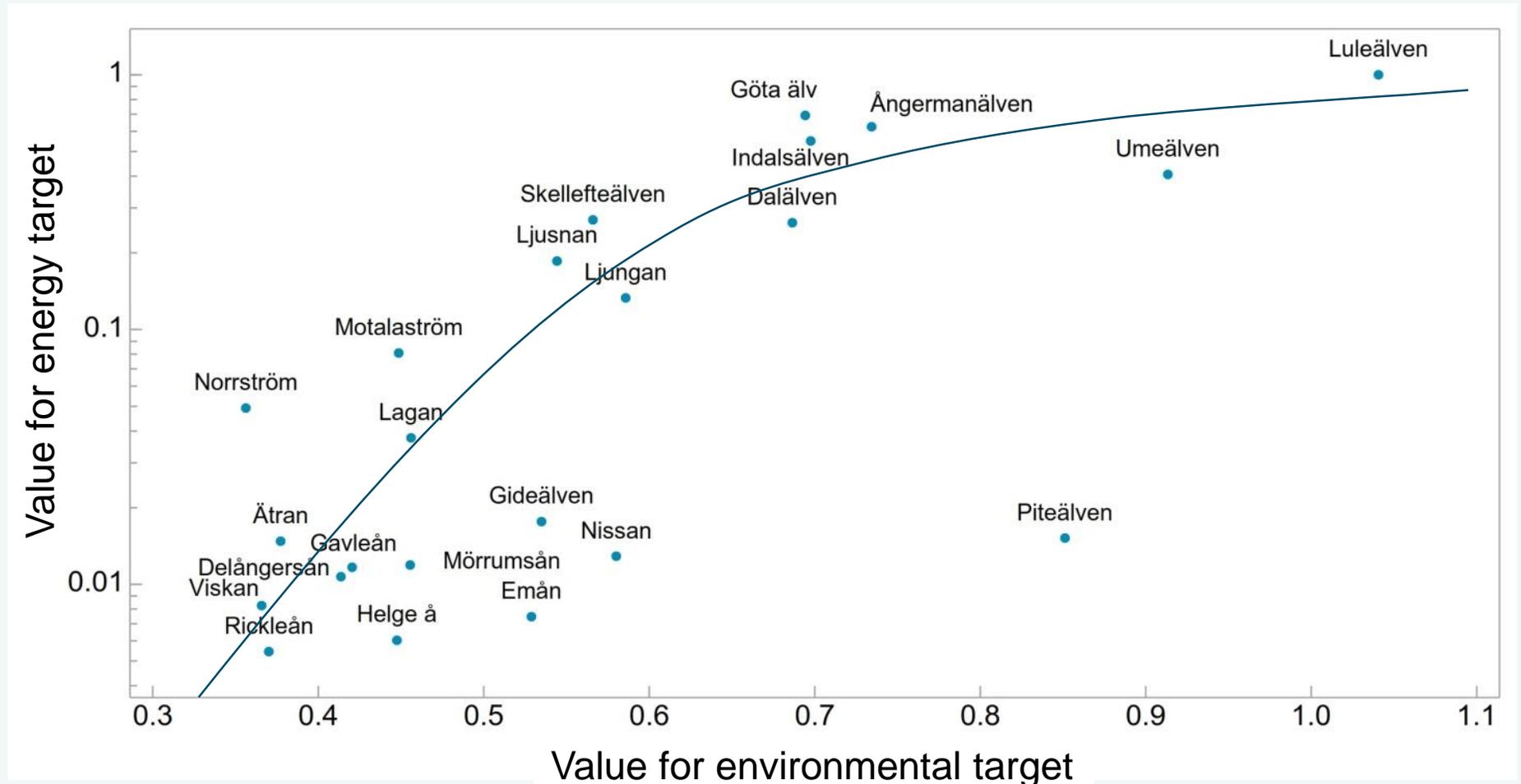
2014: National strategy for mitigation measures in the Swedish hydropower – master plan

Multicriteria analyses on catchment level
based on water body data



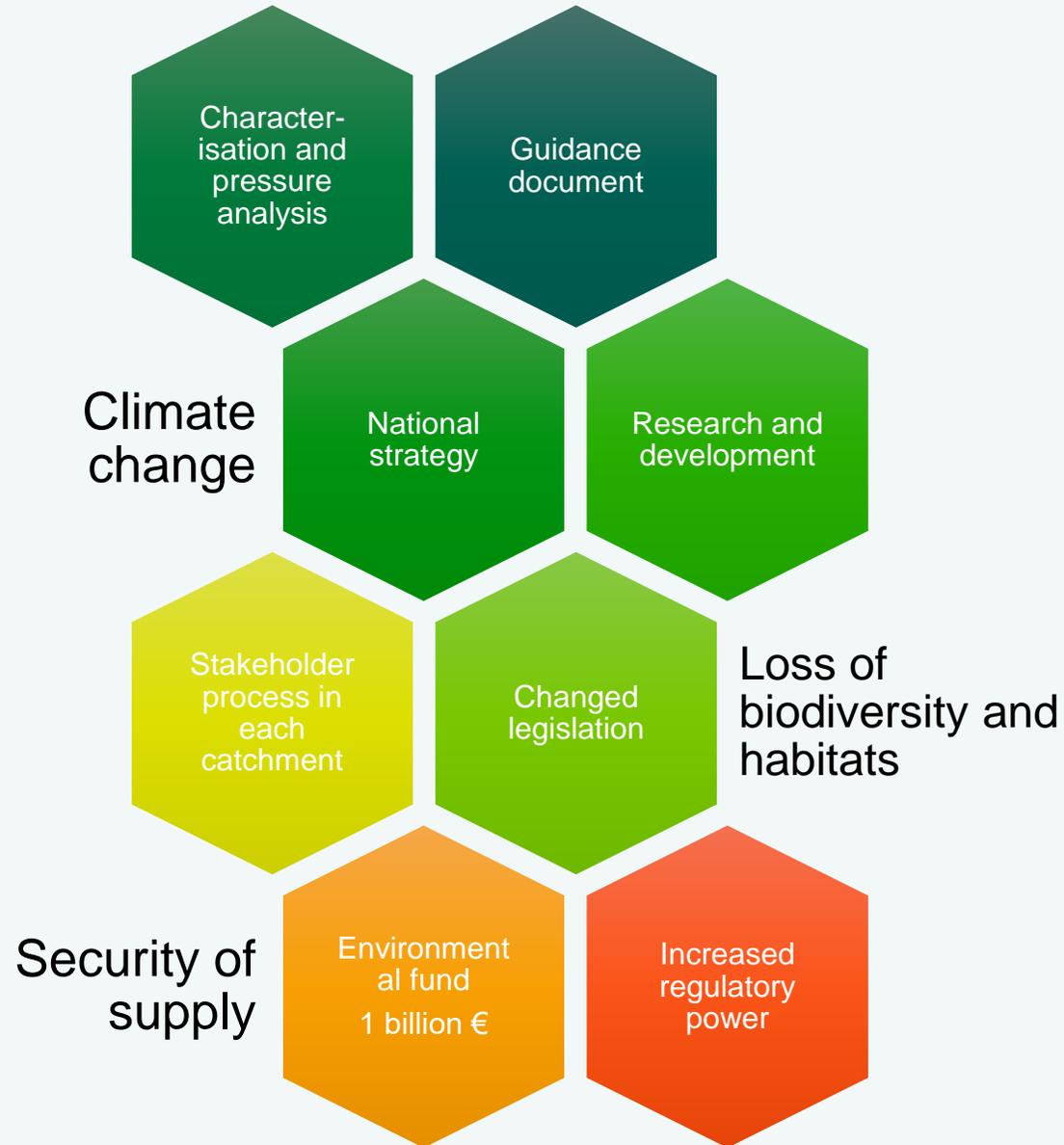
The results

All catchments with large hydropower production



The toolbox for sustainable hydropower in Sweden

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What we need to review 1800 Hp plants and thousands additional dams in 20 years...

- » Rapid methods for large scale physical characterisation of rivers and lakes in order to describe the habitats (GIS, Remote sensing, models)
- » Proper pressure analysis in each hydropower plant and accumulated in each catchment
- » Improved links between ecology and hydromorphology and methods to set reference conditions and environmental goal
- » Sensitive indicators of hydromorphological stress on biota in order to set the right measure
- » Life cycle models to find bottlenecks in the physical habitats and ecological systems
- » Expert systems, AI, Internet of things, to set the right measure in the right place and to monitor the result
- » International collaboration and networking





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