POTENTIAL LAND DEGRADATION OUTCOMES WITH RENEWABLE ENERGY PROJECTS

Alternative energy projects such as wind and solar cannot be considered renewable if there is a risk of extensive and serious land degradation issues developing.

The processes of dryland salinity:

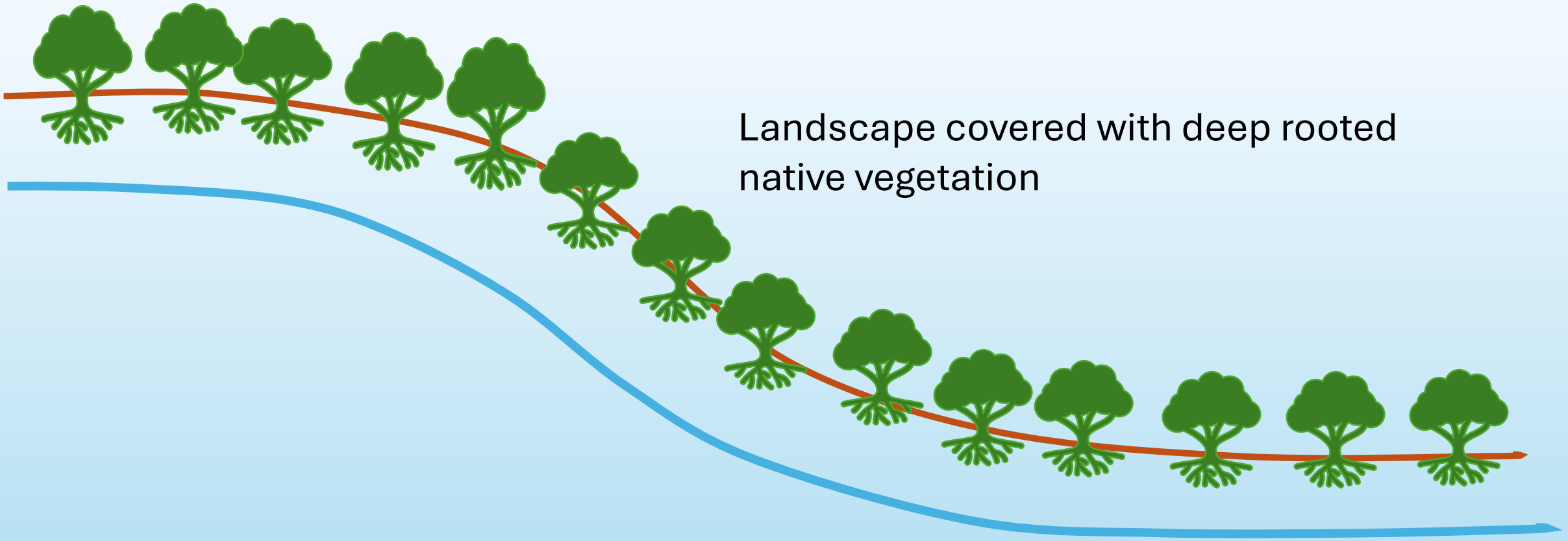
Landscapes prior to clearing for early agriculture

Landscapes during early agricultural practices

Landscapes during modern agricultural practices

Landscapes following installation of wind and solar energy facilities

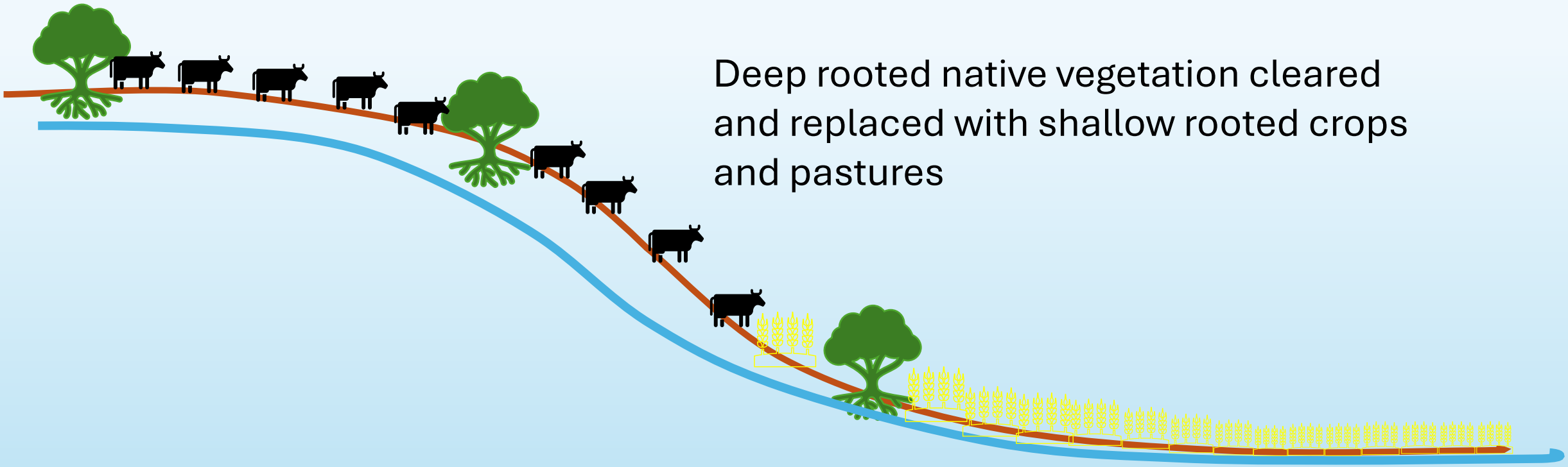
LANDSCAPES PRIOR TO CLEARING FOR EARLY AGRICULTURE



Landscape covered with deep rooted native vegetation

Shallow aquifer water table well below the ground surface

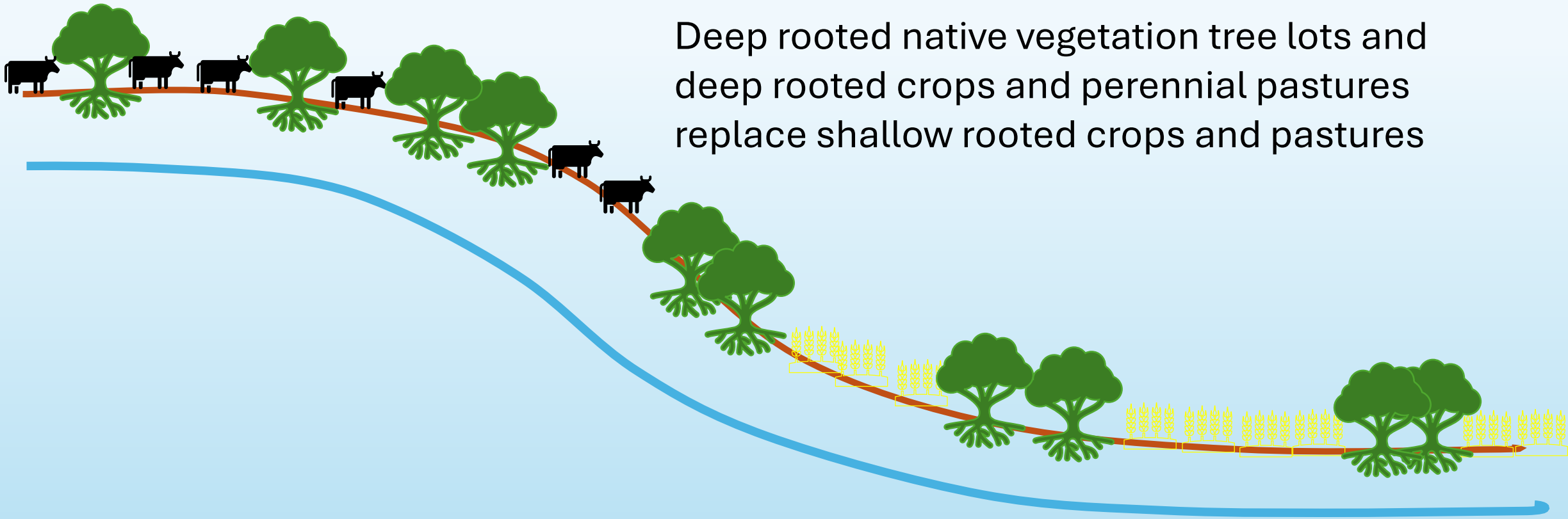
LANDSCAPES DURING EARLY AGRICULTURE



Deep rooted native vegetation cleared and replaced with shallow rooted crops and pastures

Shallow aquifer water table rises close to the ground surface and dryland salinity develops in lower parts of the landscape as water evaporates from the surface leaving behind dissolved salts

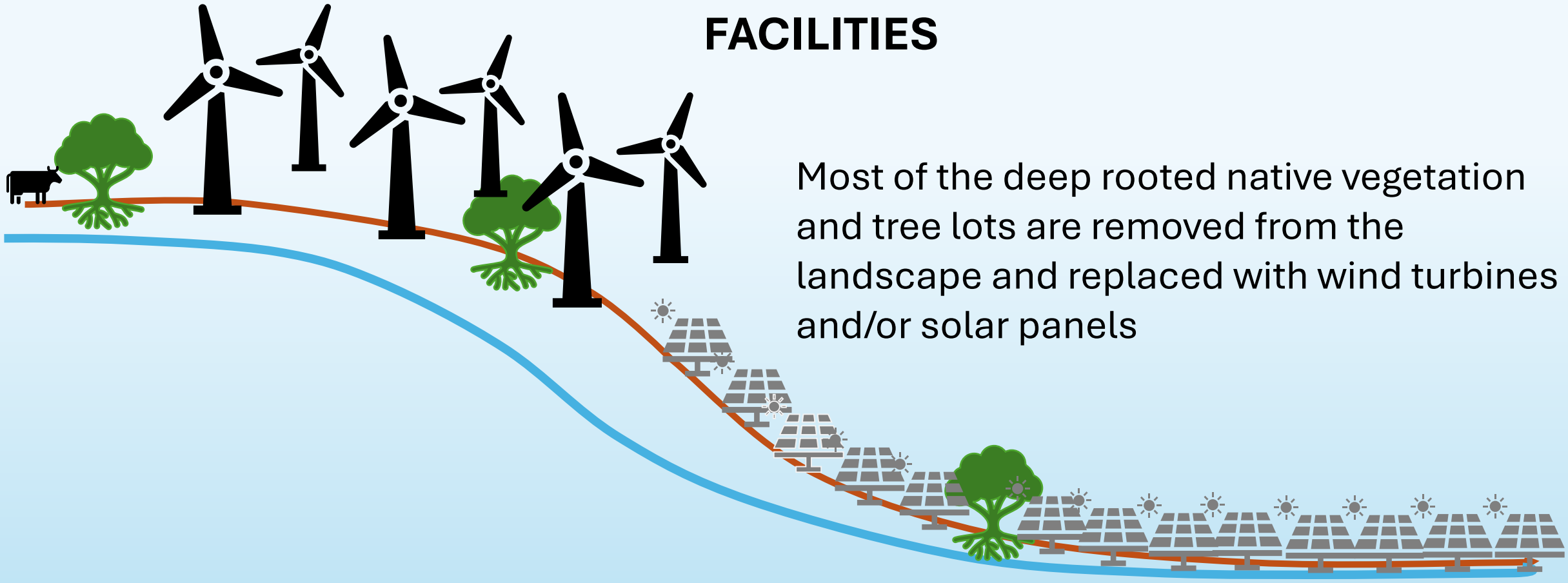
LANDSCAPES DURING MODERN AGRICULTURE



Deep rooted native vegetation tree lots and deep rooted crops and perennial pastures replace shallow rooted crops and pastures

Shallow aquifer water table retreats below ground surface and dryland salinity areas are rehabilitated in lower parts of the landscape

LANDSCAPE AFTER INSTALLATION OF WIND AND SOLAR ENERGY FACILITIES



Most of the deep rooted native vegetation and tree lots are removed from the landscape and replaced with wind turbines and/or solar panels

Shallow aquifer water table again rises to the ground surface and dryland salinity reappears in lower parts of the landscape

Some things to consider:
according to the Central Resource for Sharing and Enabling Environmental Data in NSW:

1. Land Classification

   This project area is all classified as Class 5 due to risk of acid soil, water & wind erosion, soil structural decline and dryland salinity.

2. Soil Types

   The soils within this project are all mapped as “sodosols” – hey are inherently high in sodium. If shallow aquifer watertables are within 2 metres of the soil surface dryland salinity may be present.

   The soils in the upper catchment above the project area are mapped as “tenosols” – shallow sandy soils on sandstone geology.

OTHER POTENTIAL LAND DEGRADATION ISSUES TO CONSIDER:

- **Grazing management**
  - Maximum dry matter for fire control expressed as pasture height and tonnes/ha dry matter
  - Root depth in relation to pasture height

- **Soil zinc levels from galvanized support posts**
  - Desirable soil zinc level is 3 – 10 kg of Zn/ha
  - Zinc in galvanized posts as high as 1,200 – 2,000 kg of Zn/ha
  - Potential Zn toxicity for pasture growth at 150 – 200+ kg of Zn/ha
  - Zinc toxicity prevents leaves from maturing properly by:
    - blocking uptake of iron and other minerals
    - restricting water movement through the plant
    - yellow leaves appear at the bottom of the plant as it dies from the bottom up