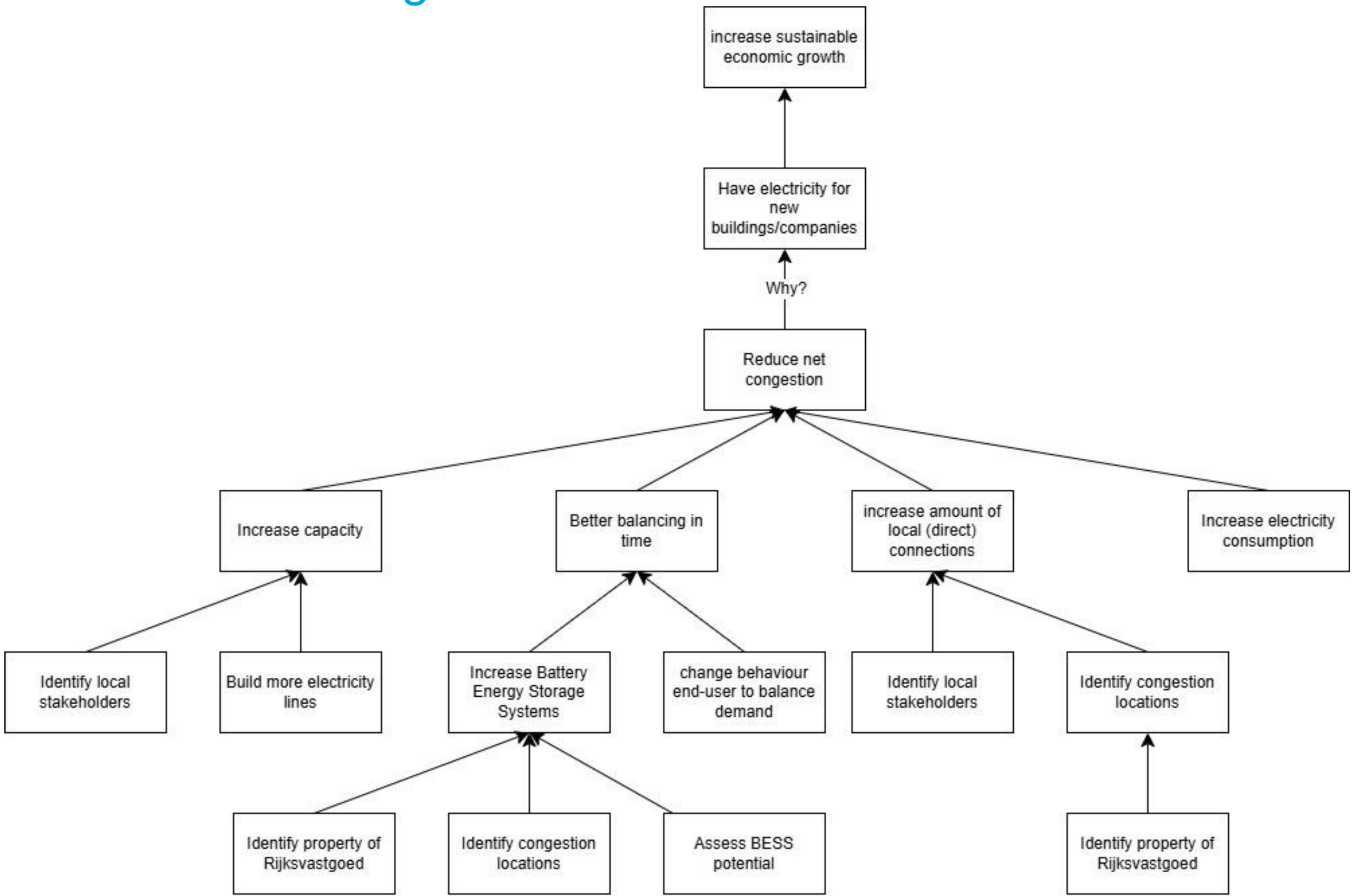
# Problem statement

How can the Rijksvastgoedbedrijf develop and manage its real estate portfolio to support a more balanced and sustainable energy system, while remaining robust to grid congestion across different energy transition scenarios?

# Means-End Diagram



# Problem Scope

- **Primary scope: national geographical scale**
  - All Dutch central government real estate (Rijksvastgoed) across the Netherlands is in scope; basis for a nationwide spatial analysis of RVB assets vs. grid capacity.

- **Governance & mandate**
  - RVB is a public landowner and decision-maker: their formal authority (administrative level) determines what can be developed where.

- **Energy system focus**
  - Reliability of the electricity supply and grid infrastructure (congestion, under-capacity) as key risks in the energy transition.

- **Future-oriented problem framing**
  - Solutions must remain effective under future demand/supply scenarios and different energy transition pathways.

- **Direction of solutions / levers**
  - better siting of generation and storage (e.g. BESS),
  - smarter / direct grid connections,
  - influencing demand and behaviour (target groups) to support a balanced, sustainable energy system.

# System elements

- Criteria:
  - Reduction of the grid load (MW)
  - Shared locations with (important) electricity grid (#)
  - Proximity of congested locations near electricity production plots (%/#)

- Policy Actions:
  - Equip: Install BESS, enable direct connection to some buildings → into a map
  - Ban: New/upgrading power installations to buildings/tenants in congested areas
  - Incentivize: Direct connection application by neighbouring area around production locations
  - Inform: Consumers of the congestion and the impact?
  - Boost: Deployment of energy efficient buildings
  - Nudge: Behavioral nudges for consumers through consumption insights

- External Factors:
  - Energy transition scenarios (when will hydrogen be adapted?)
  - Power outages  (maybe not external)
  - Planned capacity increase

# Relevant Actors

| |
|---|
| **Rijksvastgoedbedrijf** |
| **Ministry of Volkshuisvesting en Ruimtelijke Ordening (VRO)** |
| **Ministry of Economic Affairs and Climate Policy (EZK)** |
| **Client ministries using RVB buildings** |
| **TenneT** |
| **Regional Netbeheerders/ Netbeheer Nederland** |
| **Eneco/Vattenfall** |
| **Provinces** |
| **Flexibility & STorage Providers** |
| **Planbureau voor leefomgeving** |
| |

# Step 1 – Identify the problem preparations

## Exercise 2 – problem scoping exercise

1) From the case you were given, which 3-4 problem scope choices are more important and why?

| Scope category | Definition (Enserink et al 2022) | Choice and justification | Importance |
|---|---|---|---|
| Geographical scale | Physical scope of the problem situation and the spatial scale of key actors' means (p23, p64). | All property of Rijksvastgoed in the Netherlands. Can be narrowed down later for case study (and to reduce scope). Very important as we will do a spatial analysis. | 1 |
| Temporal scale | Not only determined by when the problem arises but also by the time scale of the intended effect of available means (p23, p64) | Important. Our solution, or product, has to take into account future energy demand and supply scenarios. | 5 |
| Modality | Key types of (public) service that are at risk in the problem situation (p23) | Important since the energy supply reliability for the Netherlands would be at risk if the balance with demand is not properly planned. | 7 |
| Infrastructure type | Physical or digital infrastructure around which the problem or solutions evolve (p23) | Grid infrastructure data is very important here, as this will be used to find grid location which experience under capacity for conducting electricity. Important | 2 |
| Administrative level | The institutional level of the formal rules key in the problem (p26) | It is important to know which mandate the key actors within our problem scope have. Our case owner owns much land, and thus has mandate to decide what happens here. | 8 |
| Policy goal | Actor’s goal that needs to be improved (p25) | Insights into what Rijksvastgoed can do to optimally use their assets (both buildings and plots) in order to get the best result in organising a more sustainable energy system in the future (for the Netherlands as a whole). | 3 |
| Target group | Actors’ behavior that the policy intends to change (p 25) | The decision makers (Rijksvastgoed), the grid operators, renewable energy developers to shift their planning and investment to enable more local connections while adopting new sustainable technologies. | 9 |
| Cause type | Preliminary identified external factors causing the problem that are chosen as focus | Electrification of energy supply in the Netherlands to reduce carbon emissions, while not sufficiently increasing grid capacity. | 6 |
| Solution type | Preliminary identified innovations that may help address the problem | Add more BESS, build more (or direct) electricity lines, change consumer behaviour | 4 |

## Step 2 – Define the context

### Exercise 1 – system diagram elements exercise

1) For your step 1 preferred problem statement, what would be measurable objective criteria the case owner wants to improve?

Reduction of the grid load (MW) , shared locations with (important) electricity grid (#), Proximity of congested locations near electricity production plots (%/#),

2) What (policy actions) are worth to explore as a problem context? Think for example about equip, ban, incentivize, inform, boost or nudge

Equip: Install BESS, enable direct connection to some buildings → into a map
Ban: New/upgrading power installations to buildings/tenants in congested areas
Incentivize: Direct connection application by neighbouring area around production locations
Inform: Consumers of the congestion and the impact?
Boost: Deployment of energy efficient buildings
Nudge: Behavioral nudges for consumers through consumption insights

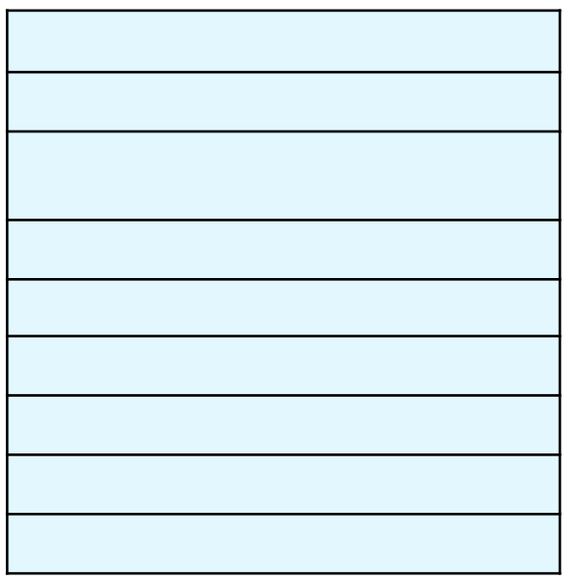
3) What external factors to you case owner are worth to consider for the problem definition?

Energy transition scenarios (when will hydrogen be adapted?), power outage (due to undercapacity and extreme demand, maybe not external), planned capacity increase

# Step 2 – Define the context

## Exercise 2 – actor analysis

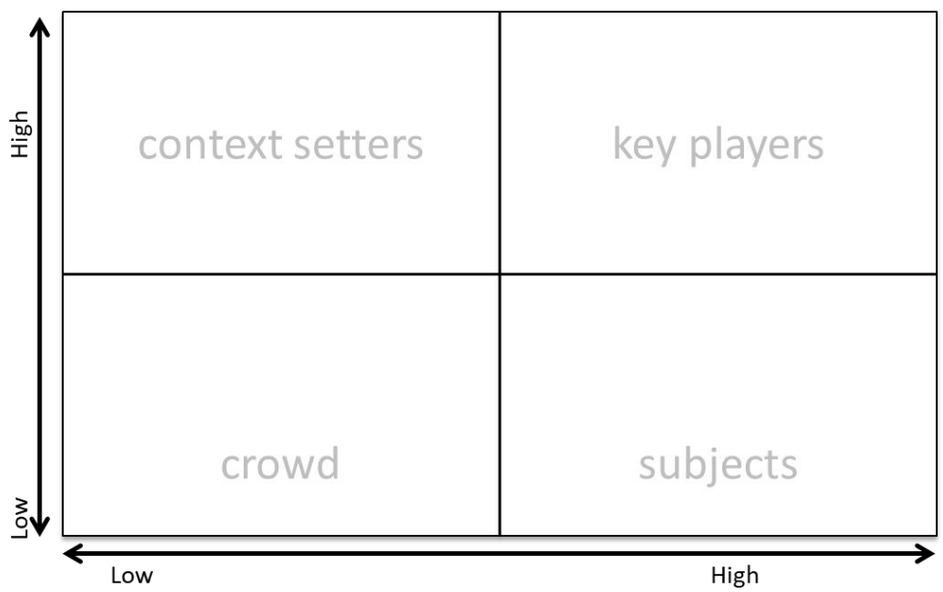
1) Which actors are relevant for your step 1 problem statement and why?



Power

Resources available

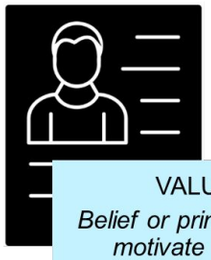
- Regulation
- Financial
- Information
- Expertise
- Other




Interest

Guiding values and desired objectives

## Exercise 3 – Personal exercise for key actors



VALUES
*Belief or principles that motivate change*

HOPES
*Expected opportunities to change*

FEARS
*Negative attitudes that limit change*

Note from Ameera and William :)
We don’t believe that Rijksvastgoed has much power into solving net congestion (as they are not responsible for increasing grid capacity or load shifting, KGG does that). Rijksvastgoed does however own the property, giving them medium power (but no mandate)

# Step 3 – Product ideas value proposition

## What product ideas to address the step 1-2 problem definition you have in mind?

### Pain relievers questions

How might we help main users to achieve their desired goal or situation? What product idea might help:

- Save time, money, and effort
- Remove frustrations or ease worries
- Improve current practices
- Make activities or tasks easier
- Avoid social fallout (loss of trust, status)
- Reduce financial, social, or technical risks
- Prevent common mistakes
- Lower adoption barriers (cost, complexity)

### Gain creator questions

What key tasks will your product support for each user role?

- **Decision-makers:** Choose to implement the product idea(s)
- **Financial supporters:** Approve the budget to implement them
- **Direct users:** Consider your product ideas for their work
- **Technical experts:** Ensure the product quality
- **Influencers:** Shape opinions and choices

### Obstacle reliever questions

What are the main reasons why designed products at your client's organization do not create the intended results?
Is there any problem with…

- Decision-making process
- Similar products at your main users' organizations
- Persons to be involved
- (In)formal agreements to reconsider
- Concepts that need to be clarified