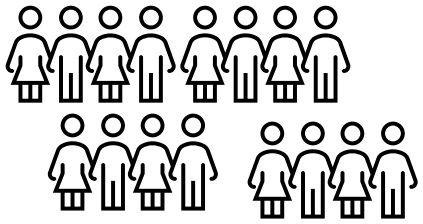
Welke verandering moet er doorgevoerd worden en durven we het?

(ja, met) Grid as a Service

Waarom Grid-as-a-Service…

…als uitvoering van Alliander’s System Operations?



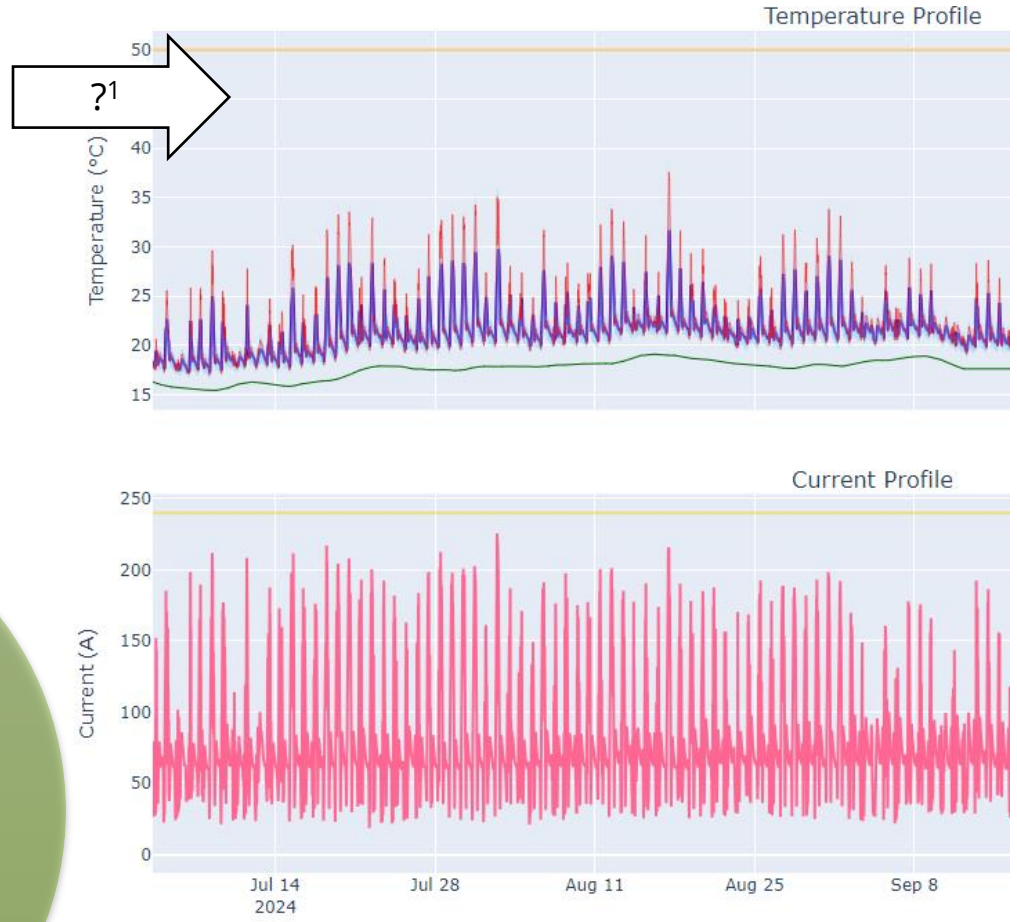
2. Flexibiliteren

Beter Benutten Net

1. Verzwaren

Verzwaren

Verzwaren



[1] Deels direct te gebruiken, maar hier gaat het om de randvoorwaarden

De randvoorwaarden en hun invulling

...waaraan wordt gewerkt

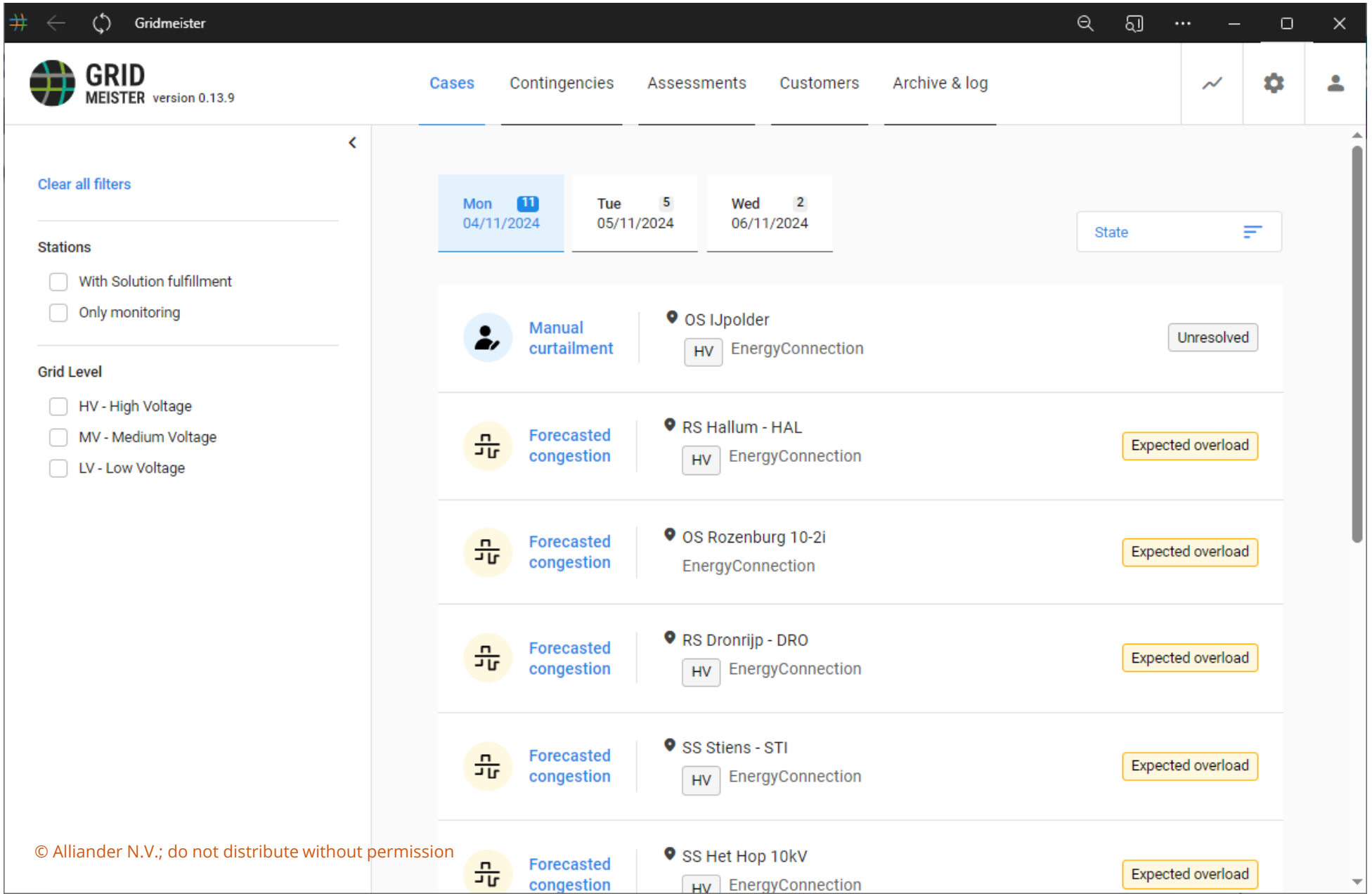
Aan de hand van wat we nu hebben (GaaS), bespreken we 3 randvoorwaarden[1] hoe we het aandurven.

1. Systeemveiligheid expliciet en op Schaal!
2. Doorgronden: b.v. welke limiet, welk Risico?
3. Wendbaarheid “in the edge”.

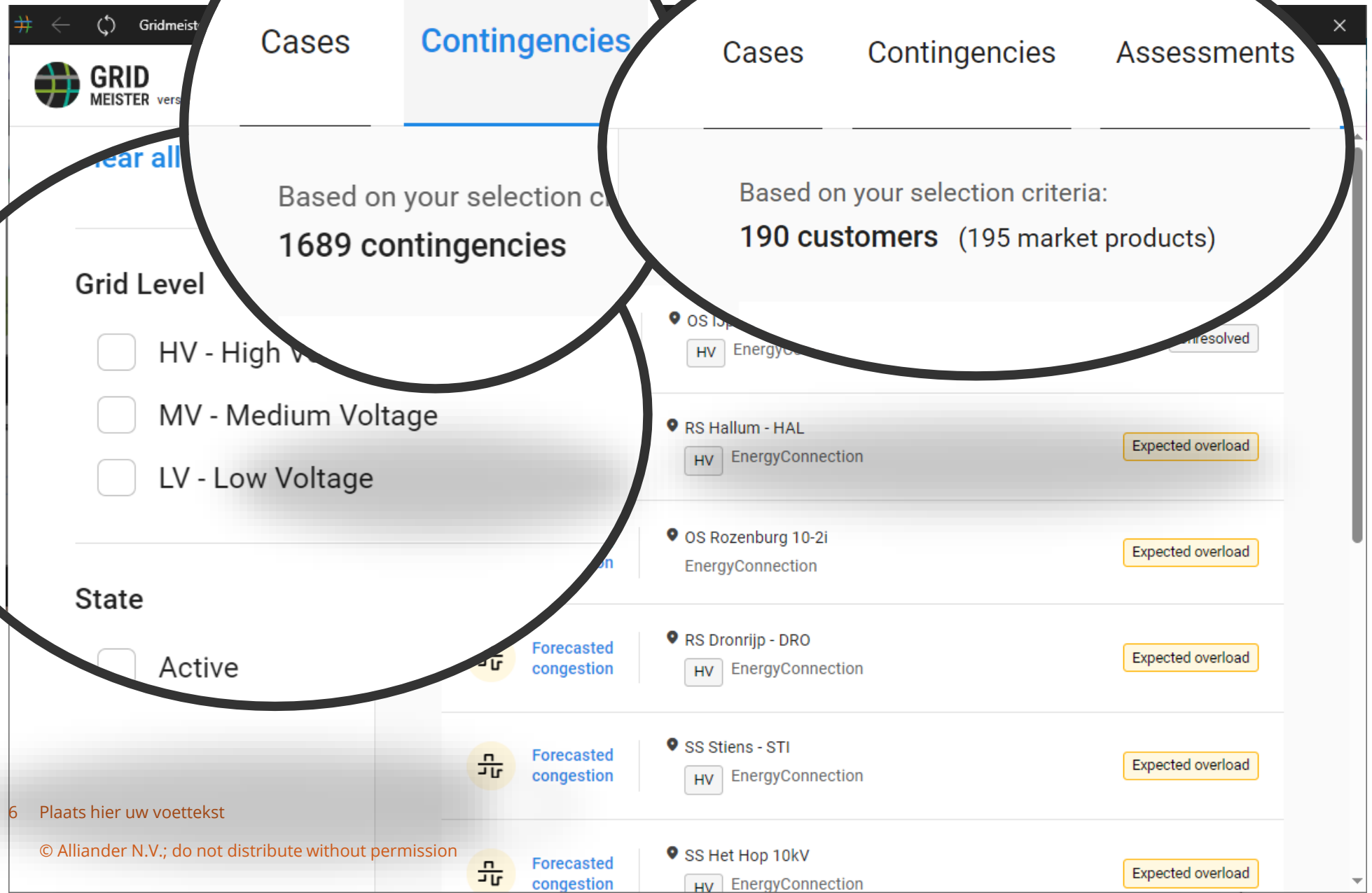
[1] Selectie zeer significante randvoorwaarden; niet uitputtend

1: Systeemveiligheid expliciet op schaal

In de praktijk op een rustige dag



Onder wa eel



HOW does System Operations do this?

Process/progress assistance

1. Creating integral view

Short Term Forecaster

Power Grid Model

2. Determine problems and solutions

Dynamic Safety & Contingency Assessment

Solution Fulfillment Manager

3. Apply solutions (agents) & verification

Dynamische input

Connectiviteit

Metingen

Limieten

Demand/ Response afspraken

+ veel meer

Realtime assessments started

Realtime safety assesment started
22,287

Realtime assessments completed

Realtime Safety assesment completed
22,286

Realtime assessments failed

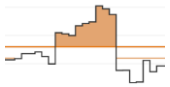
Realtime Safety assesment failed
1

Average realtime assessments duration in MS

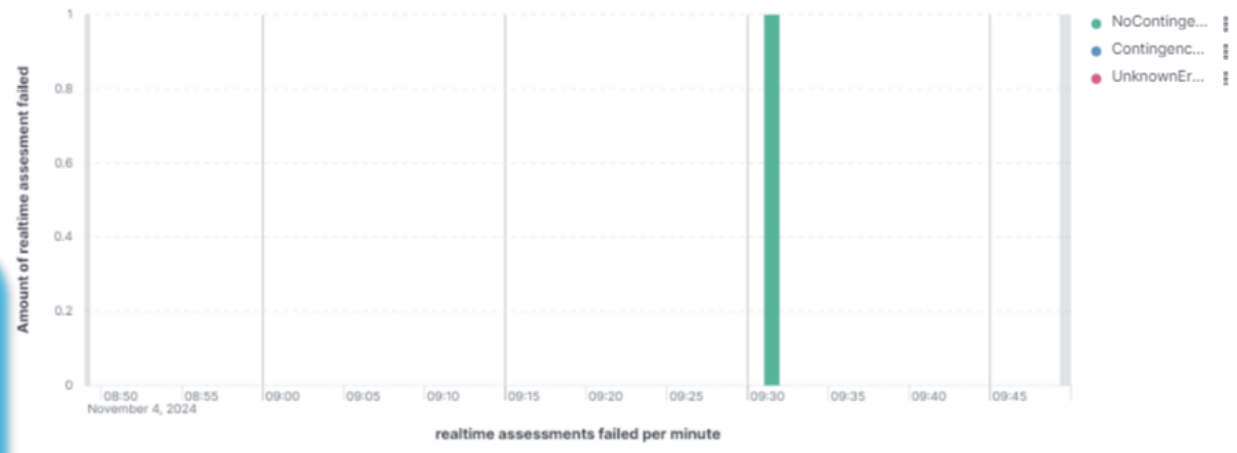
Average realtime safety assesment duration MS
78

Realtime assessments started

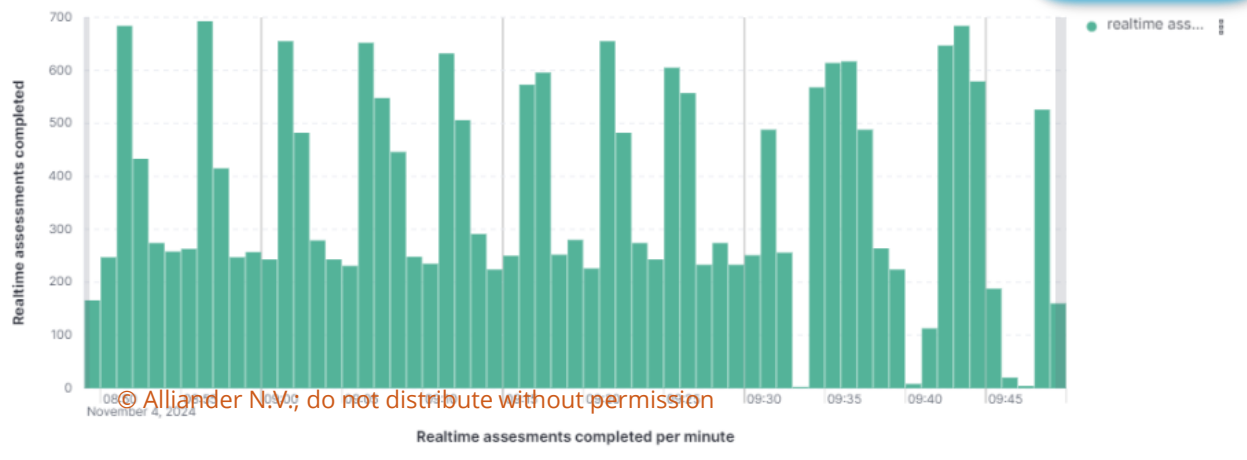
Dynamic Safety & Contingency Assessment



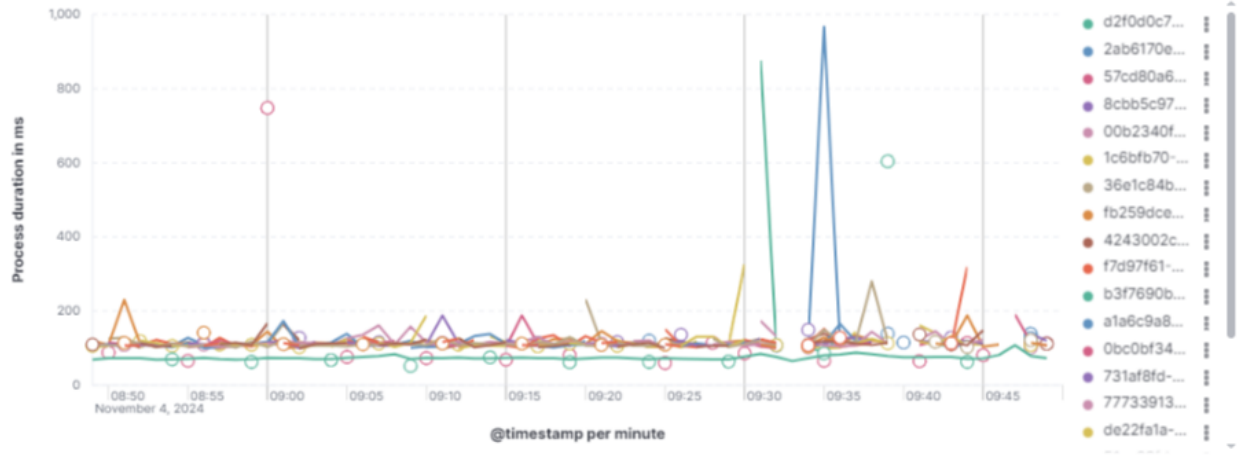
Realtime assessments failed



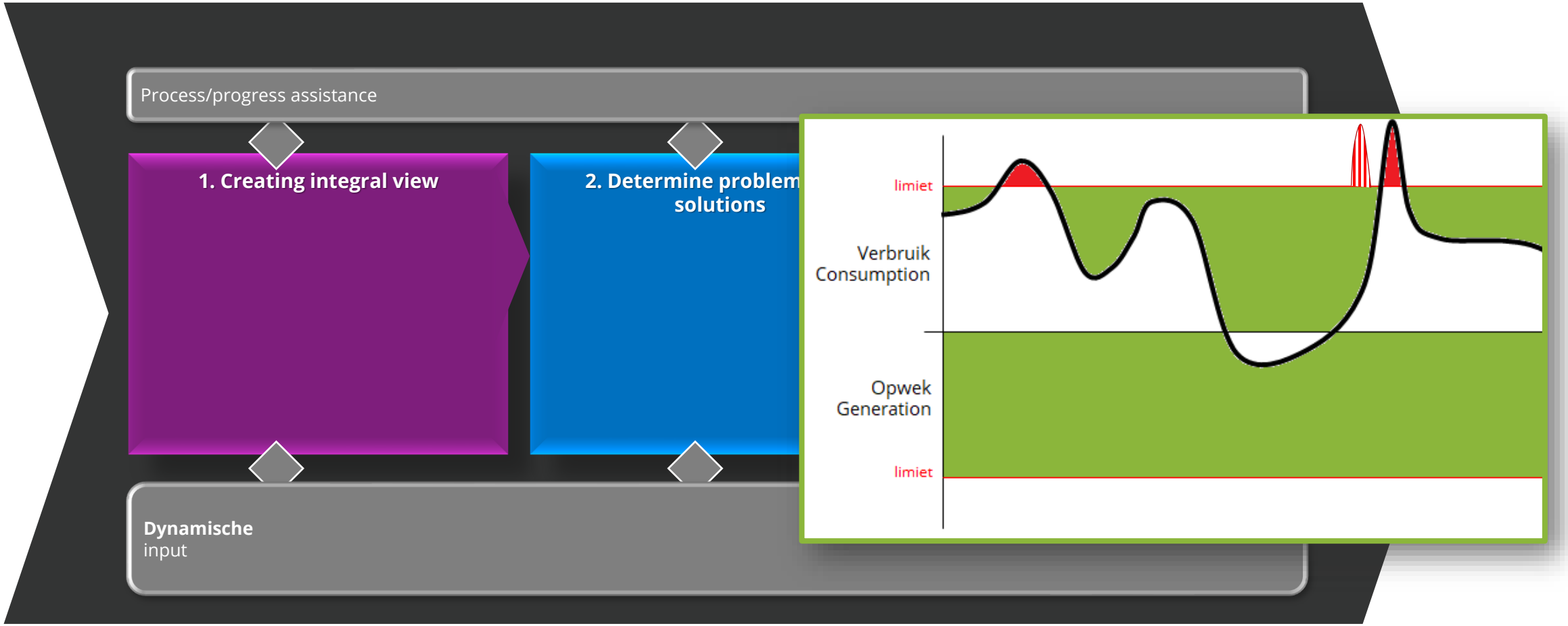
Realtime assessments completed



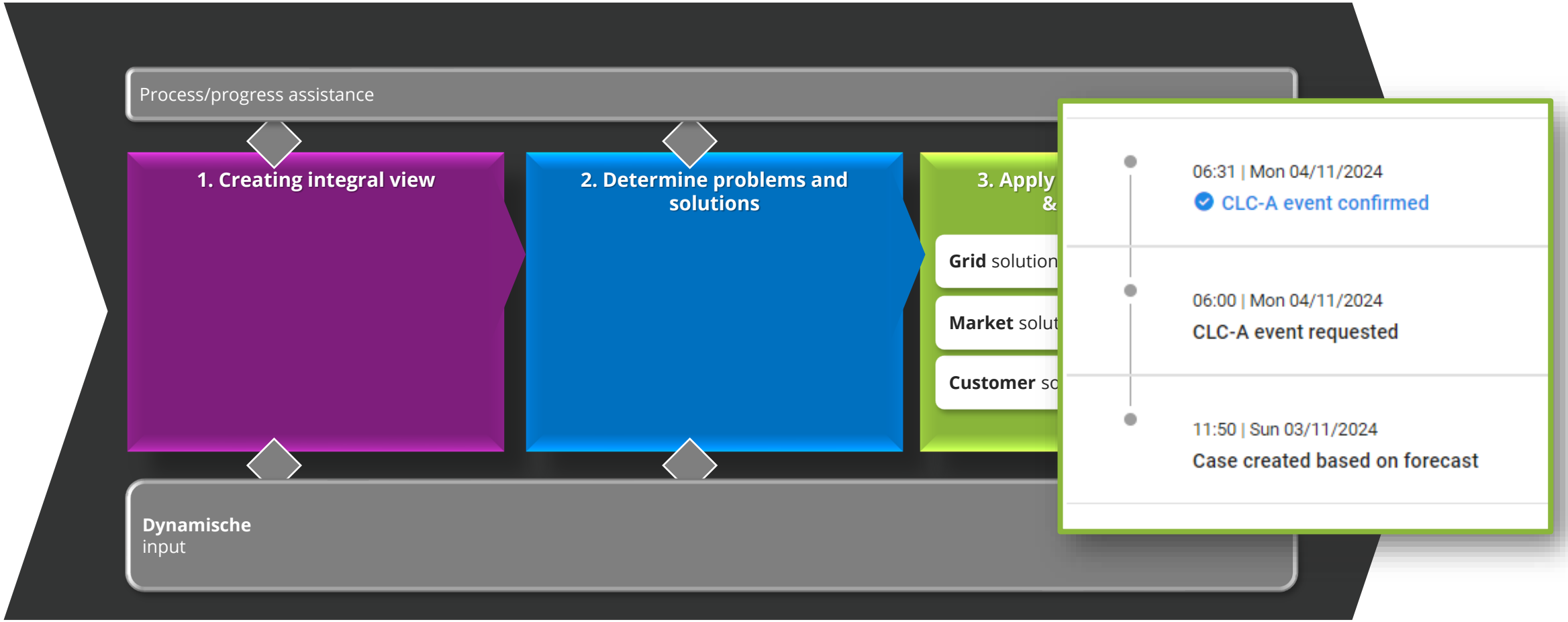
Realtime duration per contingency



HOW does System Operations do this?



HOW does System Operations do this?



2: Doorgronden – b.v. welke limiet, welk risico?

Verschillende perspectieven (business-area's)

Asset limieten zijn en blijven dominant voor de werking van het energiesysteem

Capacity management market

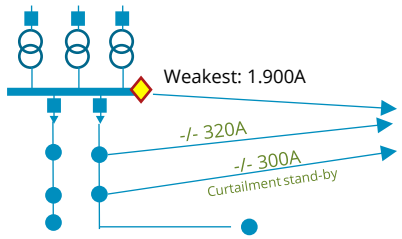
Capacity management (net & klant)
Bedrijfsvoering op capaciteit

Grid management
Bedrijfvoering op netten

Asset management

Distribution System Operator

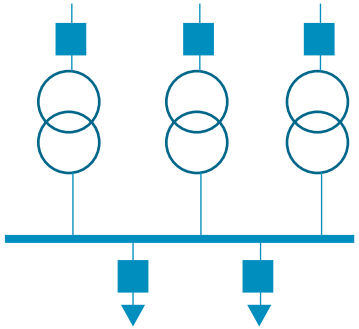
Distribution Network Operator



Inter-tie

Energy system limits
1.900A
N-1 criteria can be fulfilled at higher loads in the energy system by including customer stand-by solutions

Influencing



Equipment

Grid limits
1280A
e.g. Would expect 3x 640A, but fulfilling N-1 criteria limits to 2x 640A.

Influencing

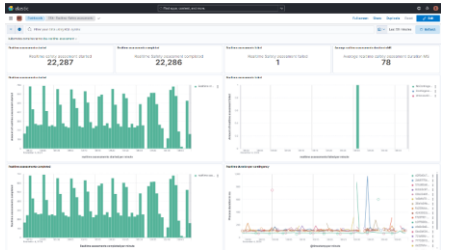
Asset

Asset limits
640A
e.g. to avoid thermal overload

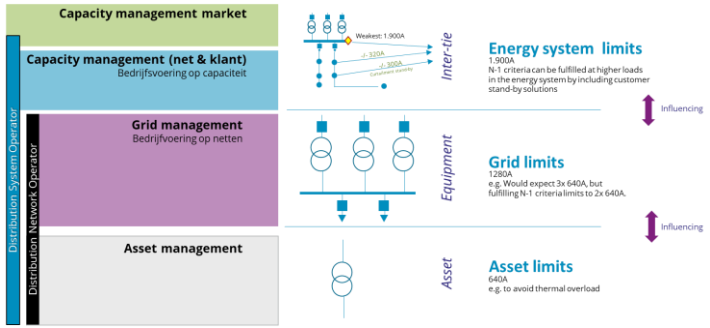
Samenvatting en 3: Wendbaarheid “in the edge”

Samenvatting

1. **Systeemveiligheid expliciet en op schaal!**
   Dit is niet binair; voldoende in staat zijn een risico-afweging te kunnen nemen.



2. **Doorgronden: b.v. welke limiet, welk Risico?**
   ***Theorie**: Waardevolle standaarden*
   ***Praktijk**: Energiesector in begrippen nog sterk versplinterd*
   Wat bedoelen we écht?
   ***Aanpak**: Aanpakken*



3. **Wendbaarheid “in the edge”.**
   1. Klaar voor dynamische overbelastingbeveiliging
   2. Maar ook: Frequentiebeveiliging (LFDD) dynamisch op orde
   3. Data-geïntegreerde sensoriek t.b.v. constent beeld centraal (=start bij engineering)


BEDANKT
VOOR UW
AANDACHT