

How solar farms (can) come to a standstill

Role of policy in preventing controversies in regional energy transition

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Introduction

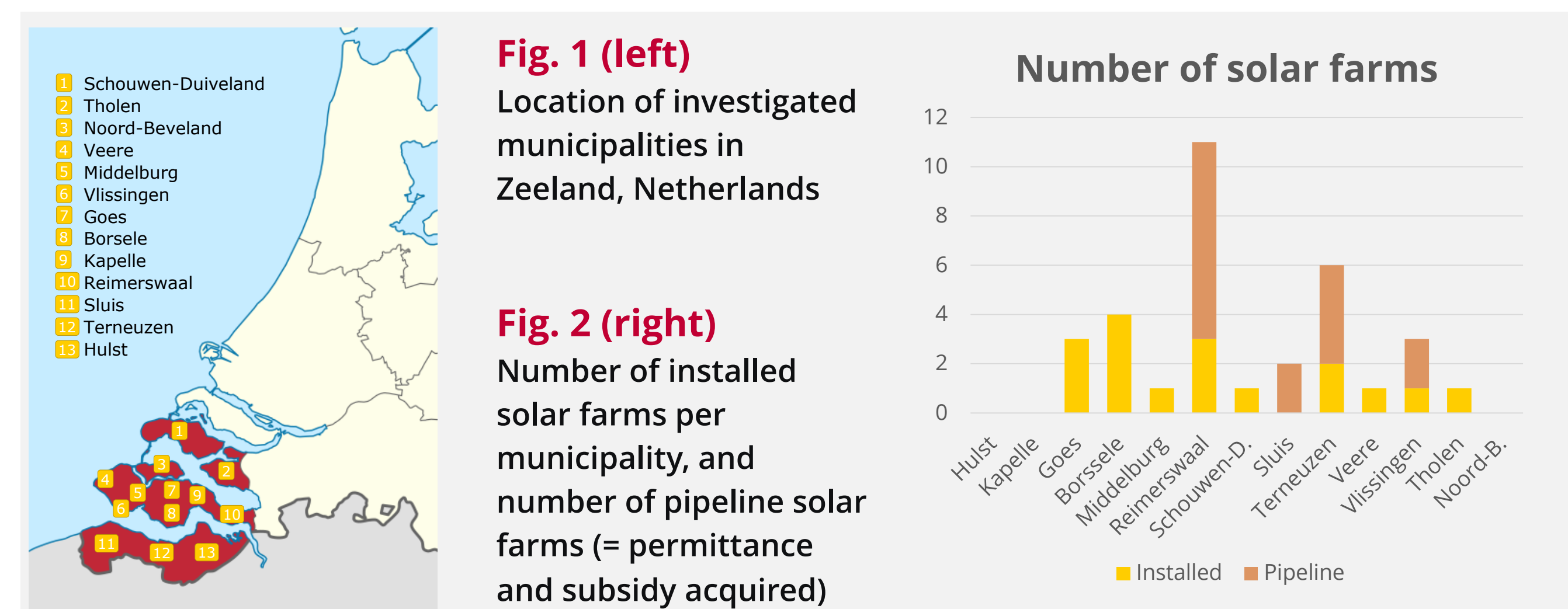
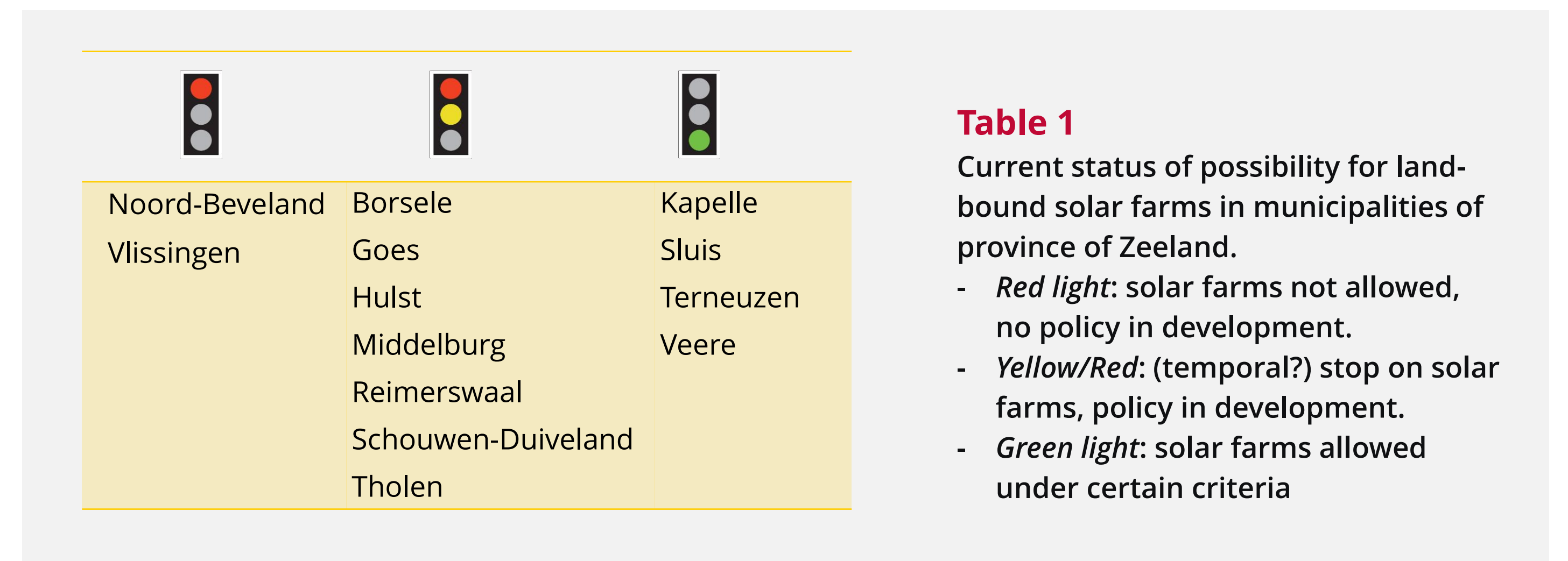
- We witness multileveled governance frameworks in which the commitments that have been laid down in the Paris agreement are translated into policies that are ultimately implemented at the local level. It is at this local level where resistance against energy projects often resides.
- In this study, we compare various municipalities in the Dutch province of Zeeland (Fig. 1). In this province 35 land-bound solar farms (425 MW) have already been permitted (Fig. 2). However, many municipalities don't allow solar farms anymore (Table 1).
- We determine to which extent controversies can be prevented by constructing elaborate formal evaluation frameworks. We also study the reversed effect: how informal trajectories can influence the policies by local governments

Theory

- In energy projects often two parallel trajectories take place: a formal and an informal trajectory of assessment (Pesch et al. 2017, Fig 2).
- Formal trajectory: a government designs policies according to pre-set rules and procedures. When certain values deemed important by the public are absent in decision-making, this can lead to the formation of an informal trajectory of assessment (*overflowing*). In some cases, may lead to adaptations in the formal trajectory: *backflowing*.
- We build on this with our conceptual model in Fig. 3. We hypothesize the controversy and informal trajectory can be mitigated to a certain extent by having an elaborate formal evaluation framework in place.

Methods

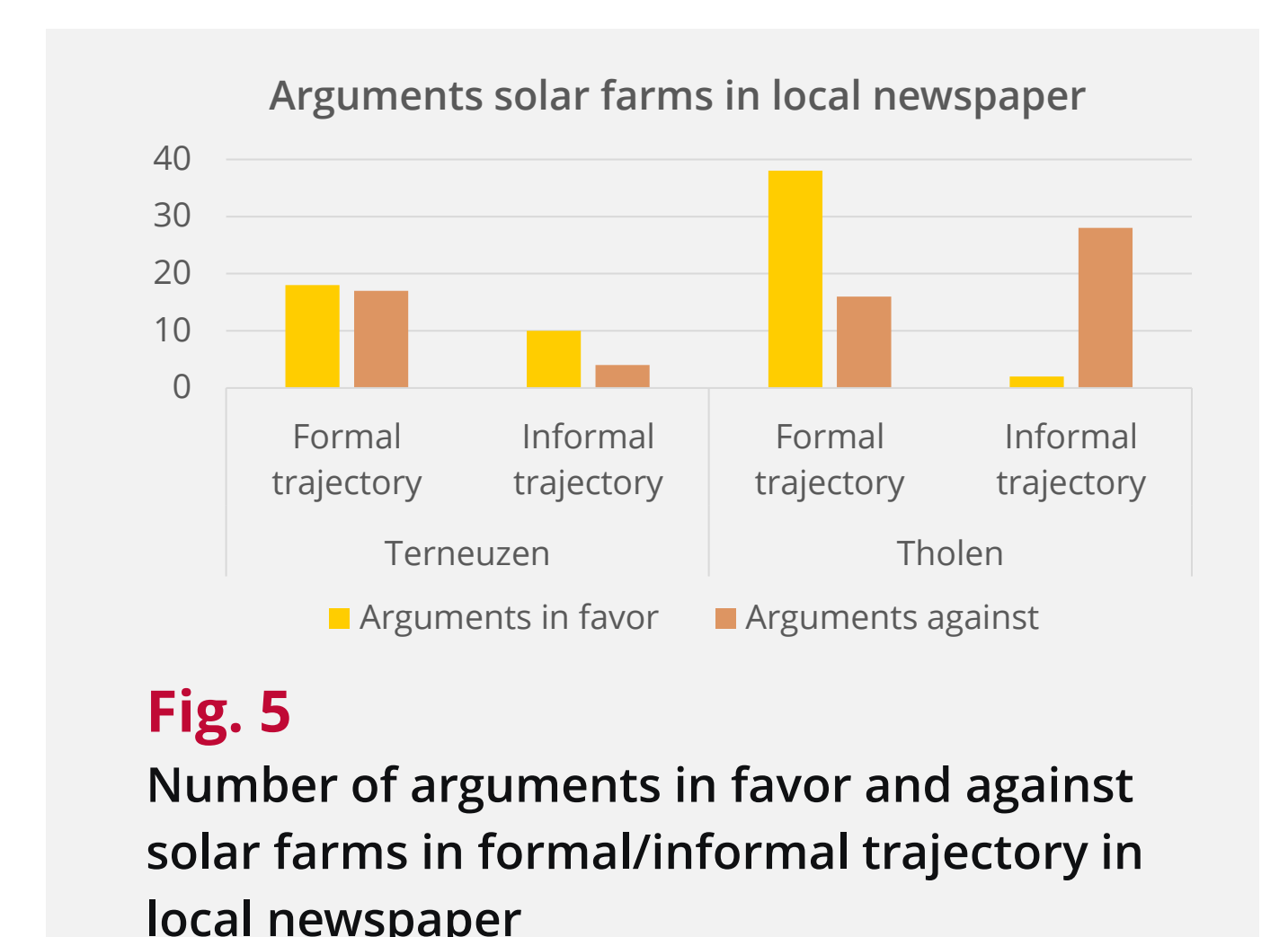
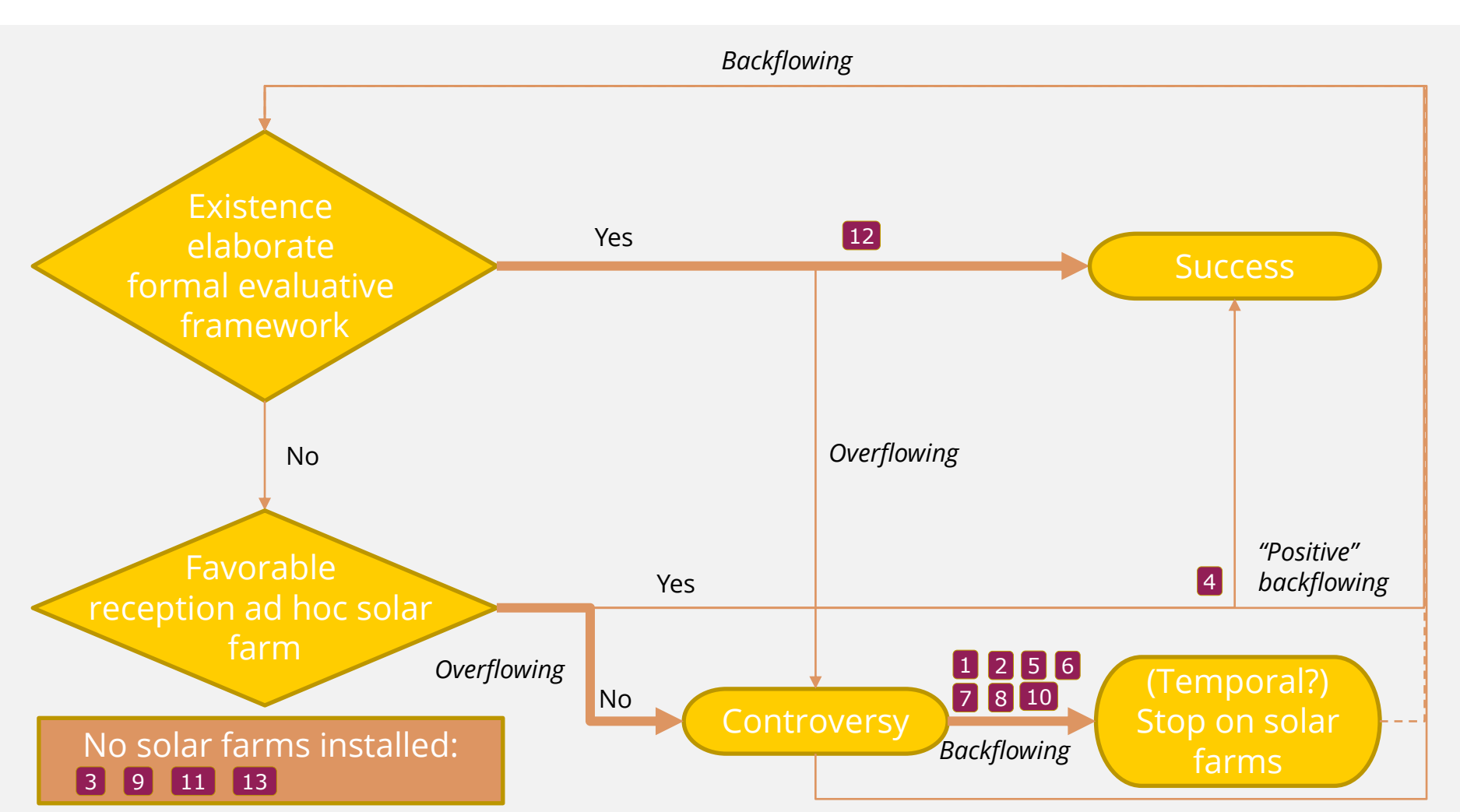
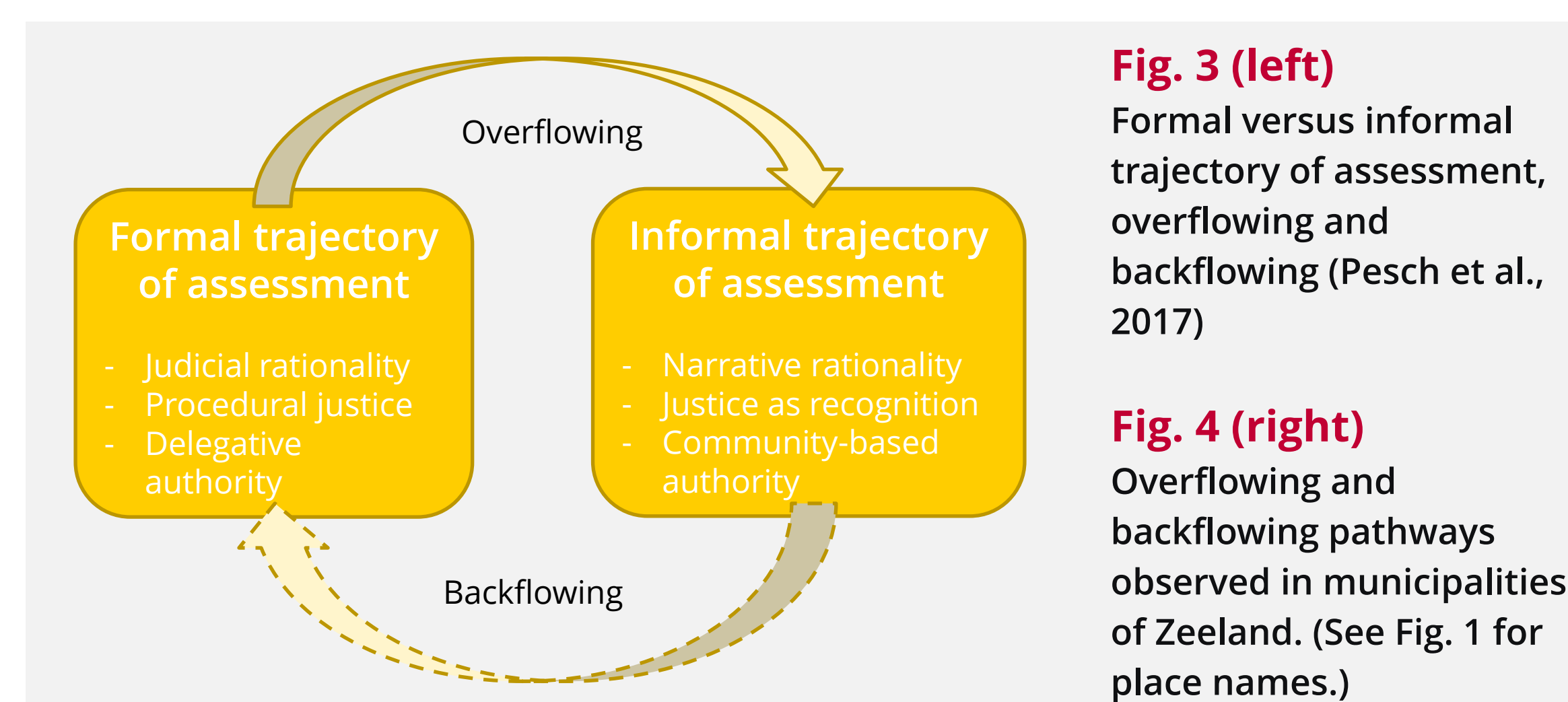
- A stepwise approach was taken: explorative case studies about all municipalities (document analysis, interview with civil servant of each municipality) to map them in the conceptual model of Fig 3.
- Subsequently in-depth case studies of two extreme cases: the first with a decision to allow a solar farm (*Tholen*) and the first with an elaborate formal evaluation framework (*Terneuzen*).
- These were compared on the arguments and underlying values that were put forward within the formal and informal trajectory by examining all (90) local newspaper articles about the solar farms in these municipalities.

Light Status	Municipalities
Red Light	Noord-Beveland, Vlissingen
Yellow/Red	Borsele, Goes, Hulst, Middelburg, Reimerswaal, Schouwen-Duiveland, Tholen
Green Light	Kapelle, Sluis, Terneuzen, Veere

Table 1 Current status of possibility for land-bound solar farms in municipalities of province of Zeeland.

- **Red light:** solar farms not allowed, no policy in development.
- **Yellow/Red:** (temporal?) stop on solar farms, policy in development.
- **Green light:** solar farms allowed under certain criteria



Results & Discussion I

- From the nine municipalities that have installed one or more solar farms, seven have put a stop to solar farms. All seven follow the same path (see Fig 4.): no elaborate formal evaluation framework about solar farms was in place, ill-received, ad hoc decisions were made on the first solar park(s) and then the decision was made to stop solar farms until a policy was in place (*“negative” backflowing*). Two out of the nine still allow solar farms. One (*Terneuzen*) did not allow solar farms until it had an evaluation framework. One (*Veere*) did not have an evaluation framework, but made a well-received, ad hoc decision; the farm served as a blueprint for the evaluation framework that was established later (*“positive” backflowing*)

Results & Discussion II

- Pairwise comparison of Tholen and Terneuzen
- Tholen: one solar farm permitted in 2015, installed in 2020 (17 MW). Currently standstill after large protest; new policy in development since 2019.
- Terneuzen: evaluative framework established 2019, revised 2020. Six solar farms permitted in 2019 and 2020, total of 181 MW.
- Tholen: great variety in arguments against solar farms informal trajectory. Formal trajectory mainly in favor: defending the solar farm
- Terneuzen: arguments balanced in formal trajectory. Arguments against solar farm informal trajectory almost absent

Conclusions

- Having an elaborate formal evaluation framework that includes important values/arguments on solar farms in place before permitting solar farms can mitigate the risk on controversy of the farm. Despite a slow start, this can lead to more solar farms installed in the longer term.
- Ad hoc decision-making leads to an informal trajectory in which arguments are put forward that were left outside of decision-making. This often leads to backflowing and a complete stop on solar farms, resulting in a severe standstill in solar farm development.

References

1. Pesch, U., Correljé, A., Cuppen, E., & Taebi, B. (2017). Energy justice and controversies: Formal and informal assessment in energy projects. *Energy Policy*, 109, 825-834.