

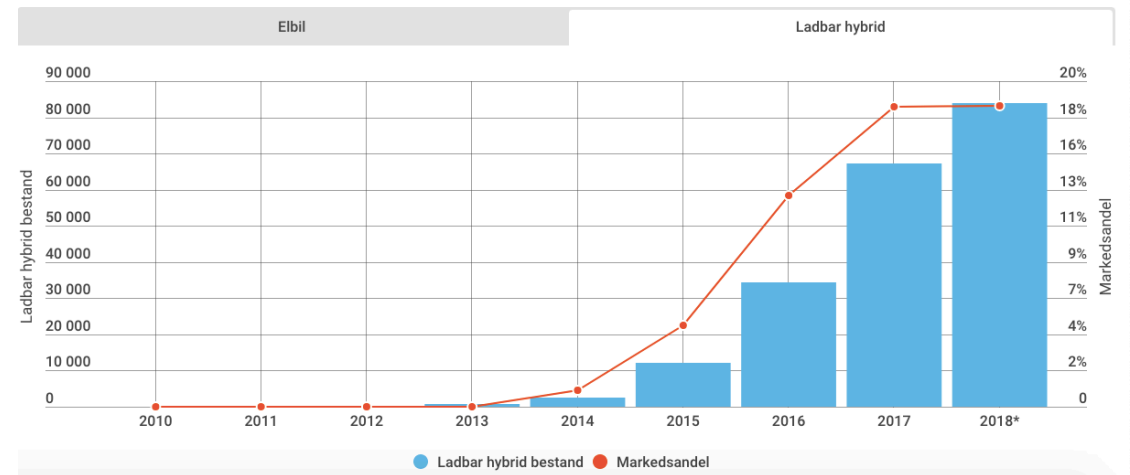
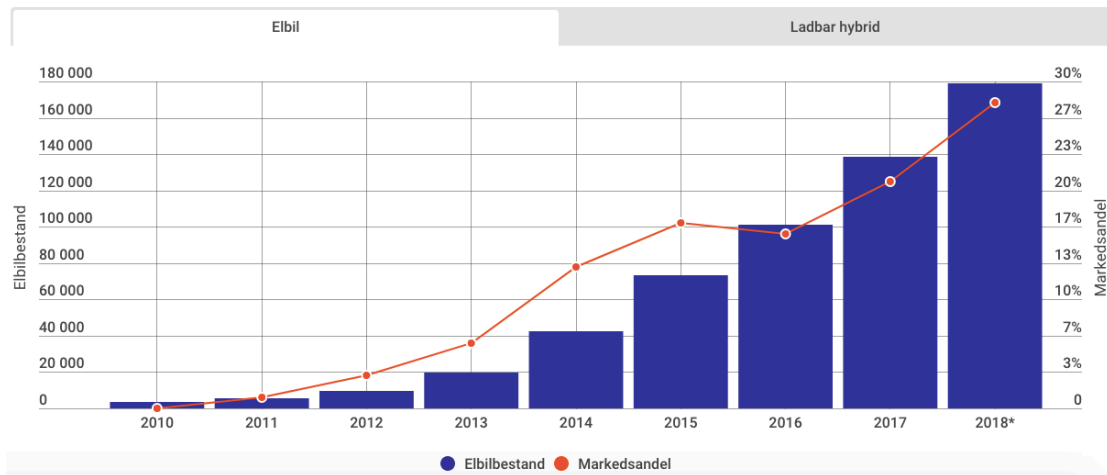
Social process of electric vehicle charging - Three examples

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Background: People are buying Electrical vehicle (EV´s)



<https://elbil.no/elbilstatistikk/>
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01.01.2018 New paragraf in ownership sections § 25. (LOV-2018.06-22-74)

- ▶ *A section owner may, with the consent of the board, provide charging points for electric cars and rechargeable hybrids in connection with a parking space available to the section or elsewhere indicated by the board. The board can only refuse to consent if there is a reasonable objection.*

The cost of «home charging» could be very high, if charging is not conducted in a «smart manner»

Case: Drammen

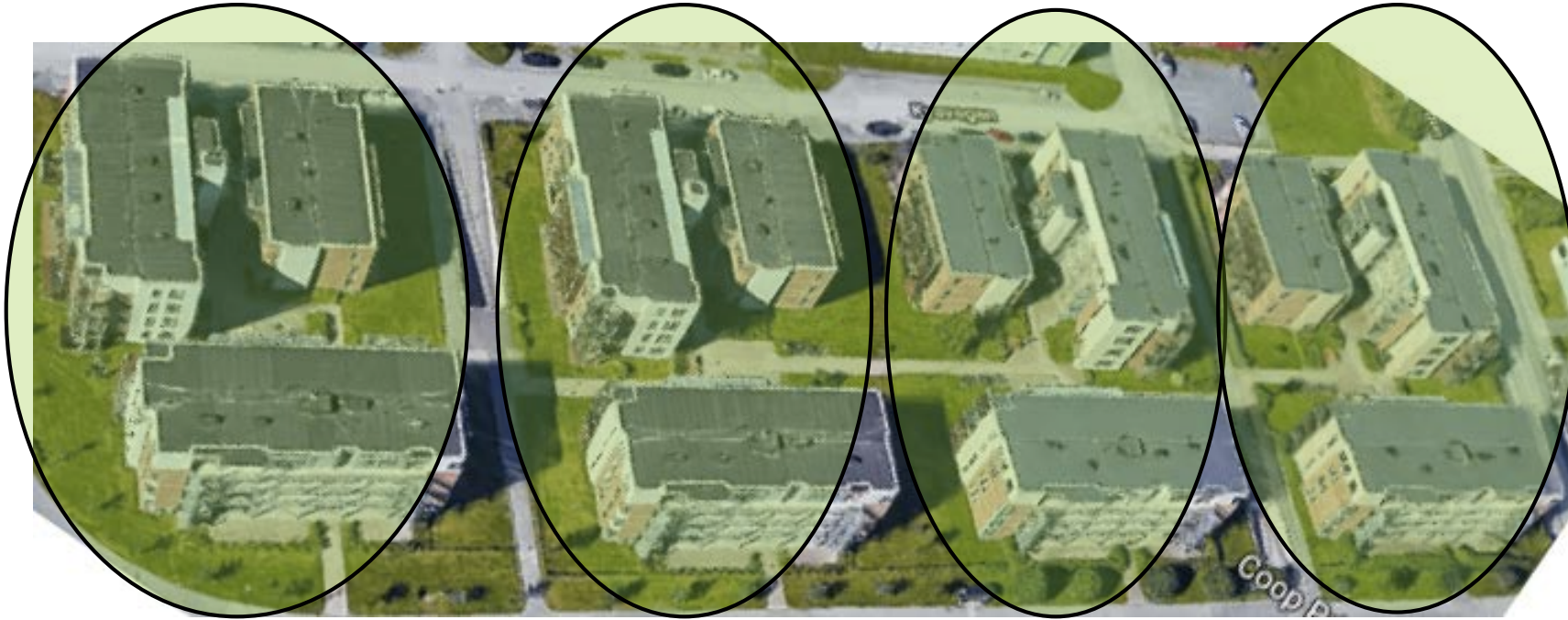


- City 40 km. from Oslo, ca. 70 000 inhabitants
 - 47 000 private cars and vans
 - Future charging need per customer: 10 kWh/day
 - Estimate from DSO – Glitre Energi Nett
- 1) Charging of EVs “spread out”
 - Current grid capacity can handle future charging
 - 2) Everyone charges at the same time
 - Potential grid investments of 1-2 billion NOK

Home charging in shared garages - the whole area



One housing cooperatives and three co-ownership
- four separate sections, four boards



Parkering

Egen parkering

Beboere skal bruke plassen i garasjen til eget kjøretøy, slik at det ikke opptas gjesteplasser utendørs. Det er kun *innkjøring* fra Fernanda Nissen veg, mens det er både *inn-* og *utkjøring* mot Kyavegen. Begge porter har videoovervåking.



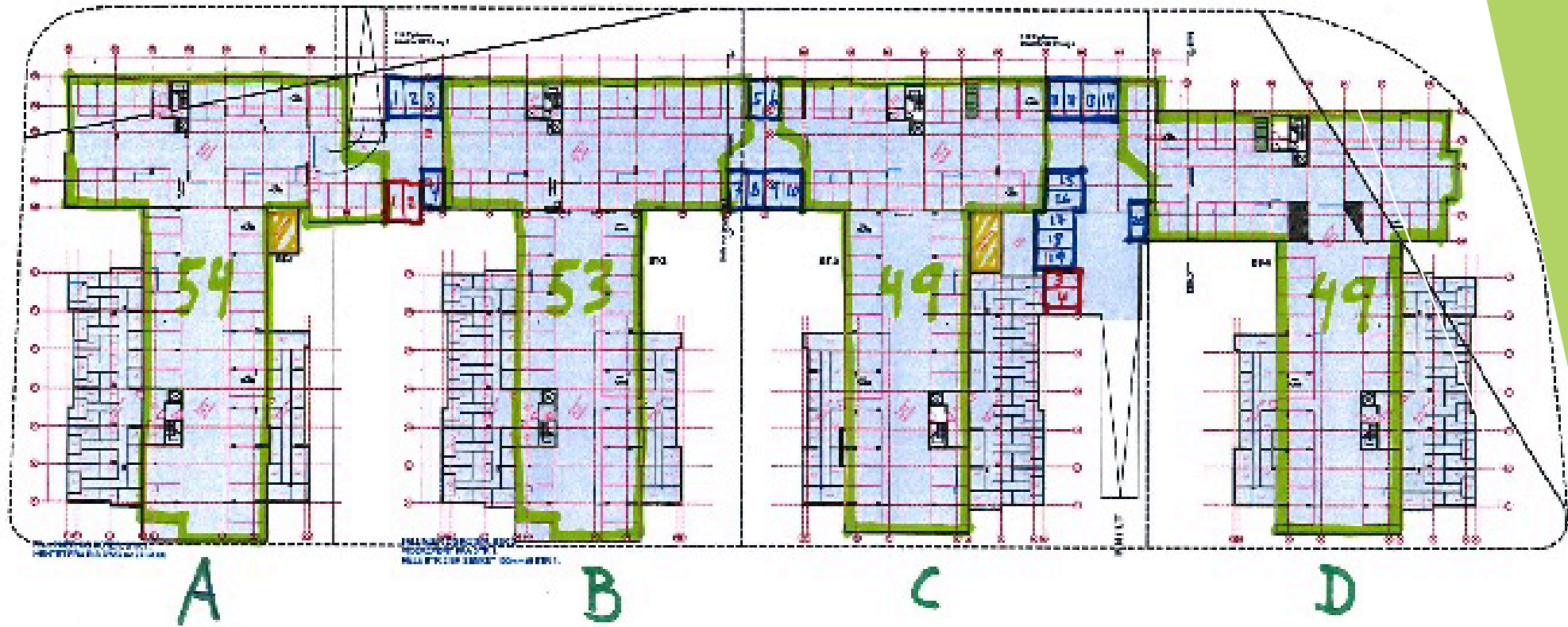
Gjesteparkering

I Persaunet leir (Strinda velforening) er det privat parkeringsordning med reserverte plasser for beboere i den øvrige bebyggelsen. Gjesteplasser beregnet for hele området finnes langs hele Kyavegens nordside, delvis på sørsiden og ved fotballbanen. Vær oppmerksom på skiltingen! Kun parkering på skilte områder. Til bruk kun for Persaunet ekstra finnes også 11 merkede gjesteplasser i garasjen under trinn 2, 3 og 4. Maks parkeringstid er 48 timer. Disse plassene skal kun benyttes av gjester som må låses inn av beboerne. Trondheim Bilkollektiv har to plasser i garasjen reservert til utleiebiler.

EL-bil

De enkelte boliglagene har hver sin ordning for lading av EL-bil. Lading av EL-bil fra vanlige tekniske kontakter i garasjen er ikke tillatt!

One shared garage, possibly four different solutions



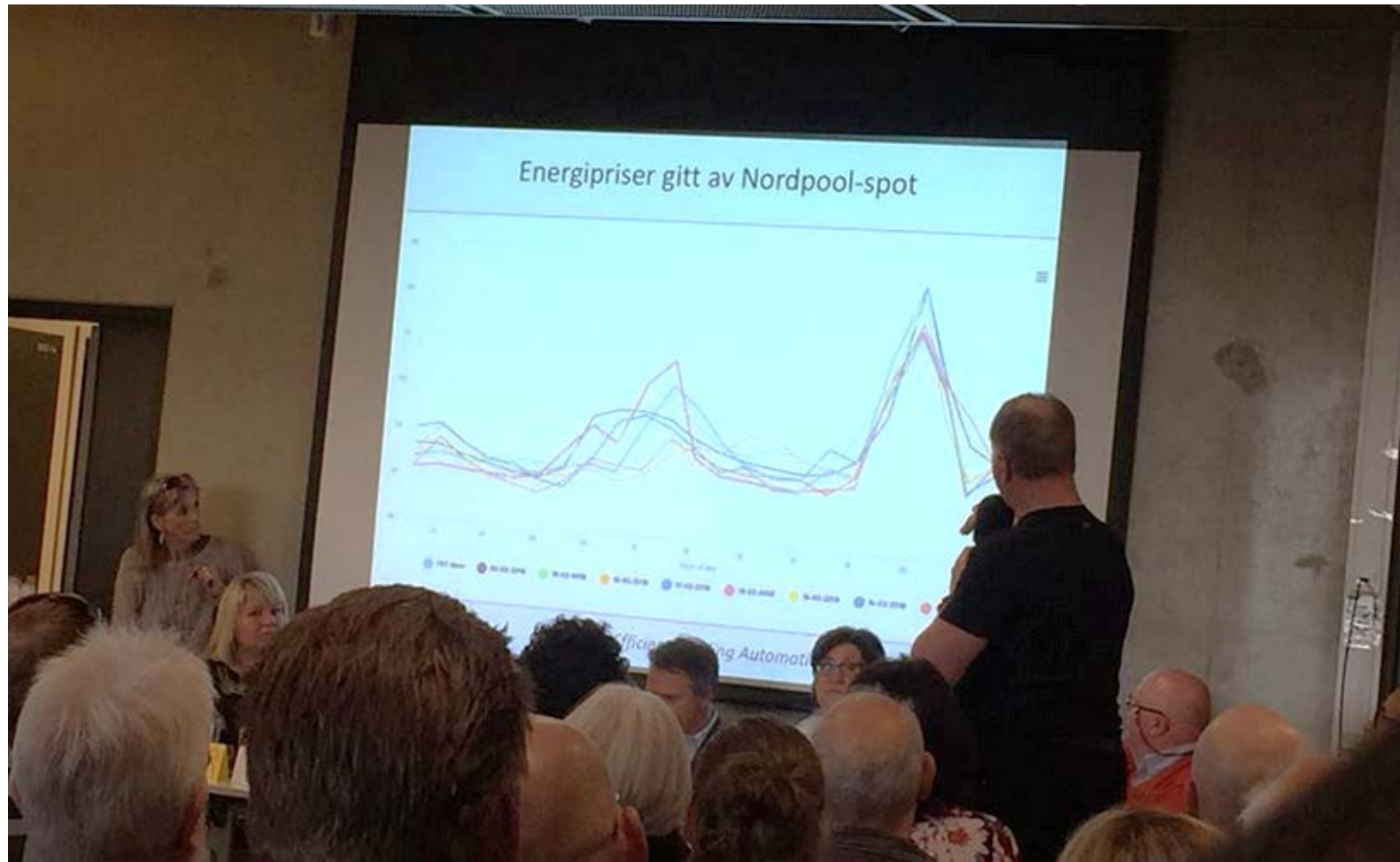
204 leil. à 1 plass (+ 1 ekstra ; tr.2) 205 pl.
 4 plasser for bildeleordn. 4 pl.
 10% a-ante plasser = 20.4 plasser ≈ 20 pl.

-  Varmesentral-rom
-  Boligplasser pr. etasje
-  DEKKNINGSGRANSE

I have been the driving force for the smart charging, because the charging of EV have been chaotic in this garage. The other boards have allowed the individual owner to build a charging station in their own space. Right. And it is becoming a wiring system of another world. By connecting its own meter and all that. My electrical engineer told me that it would be a lot of problem and he sad "no no you need to be careful. Here we can have a capacity problem". The board leader before me did allowed for the same solution, but I have reverse it.

(Board leader in housing cooperative A).

The annual general meeting:
Smart solutions or not, that's the question.



Adresseavisen



Risvollan Borettslag vil etablere 768 ladepunkt for elbiler

Risvollan Borettslag tar det akselererende salget av elbiler og ladbare hybrider på alvor. Innen tre år skal alle med garasje plass kunne lade en elbil.

The boards impact on the charging solution in shared garages.

Thank you.

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the frame, creating a modern, layered effect against the white background.

Empiri:

5 EV owners that lives in housing cooperatives.

3 Board leaders.

2 Management

1 Tobb.

2 Electrical engineer with specialisation on shared garages and board.

National regulation

EV owners and other dwellers (justices)

Advice from electrical engineer

Tobb, Obos information in members' magazine.

Knowledge