



TEMPS 1 : ENERGIE 100 % ENR



**UN AVENIR POSSIBLE
APPROCHE ECO-SYSTEMIQUE
IMPACTS & REGULATION
ETUDE DE CAS BOVLABS**



CÉDRIC CHRISTENSEN

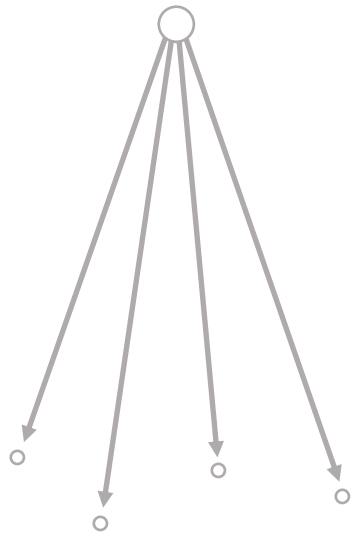
SPÉCIALISTE DES RÉSEAUX D'ÉNERGIE – CONSEIL EN
STRATÉGIE ÉNERGÉTIQUE SCÉNARIO 100% RENOUVELABLE



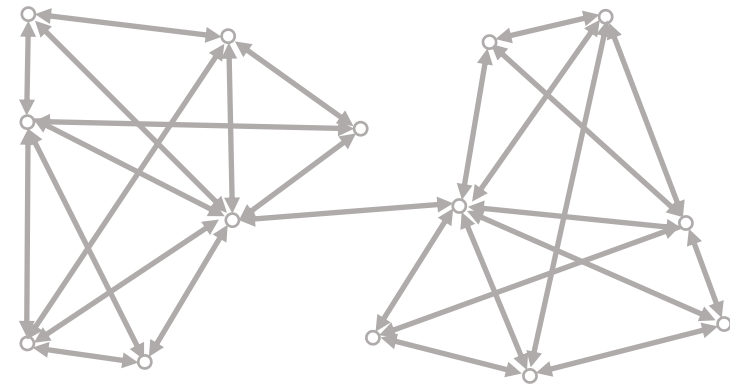
L'ÉLECTRIFICATION DES TRANSPORTS ET LA ROUTE VERS 100% D'ÉNERGIES RENOUVELABLES



Centralisé



Décentralisé



Ressources énergétiques distribuées



Solaire



Stockage



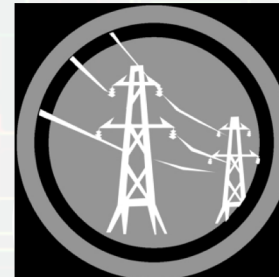
Véhicules
électriques



Smart Home



Energies
fossiles



Transmission



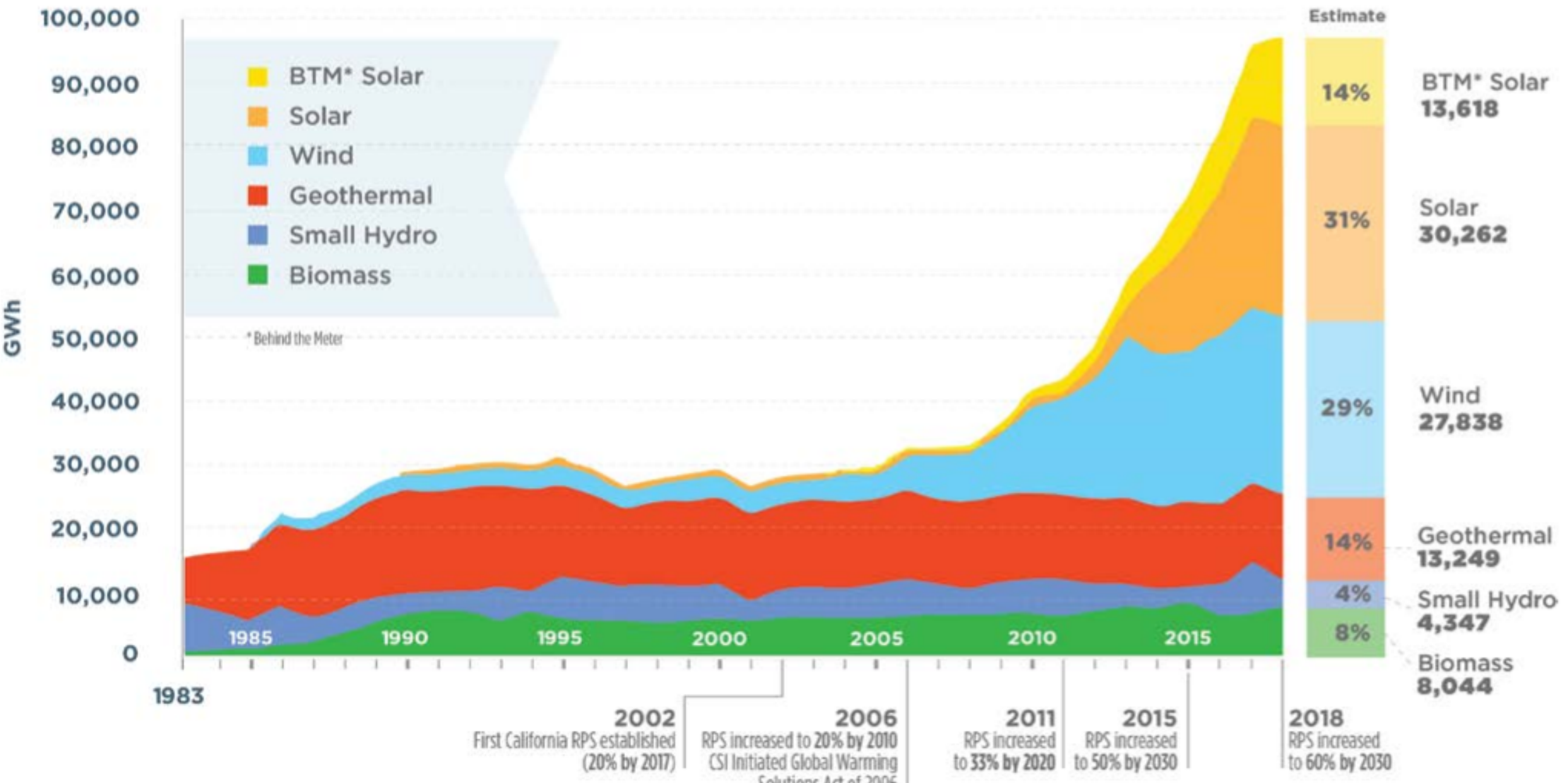
L'avenir sera 100% renouvelable, la production d'énergie sera pratiquement gratuite



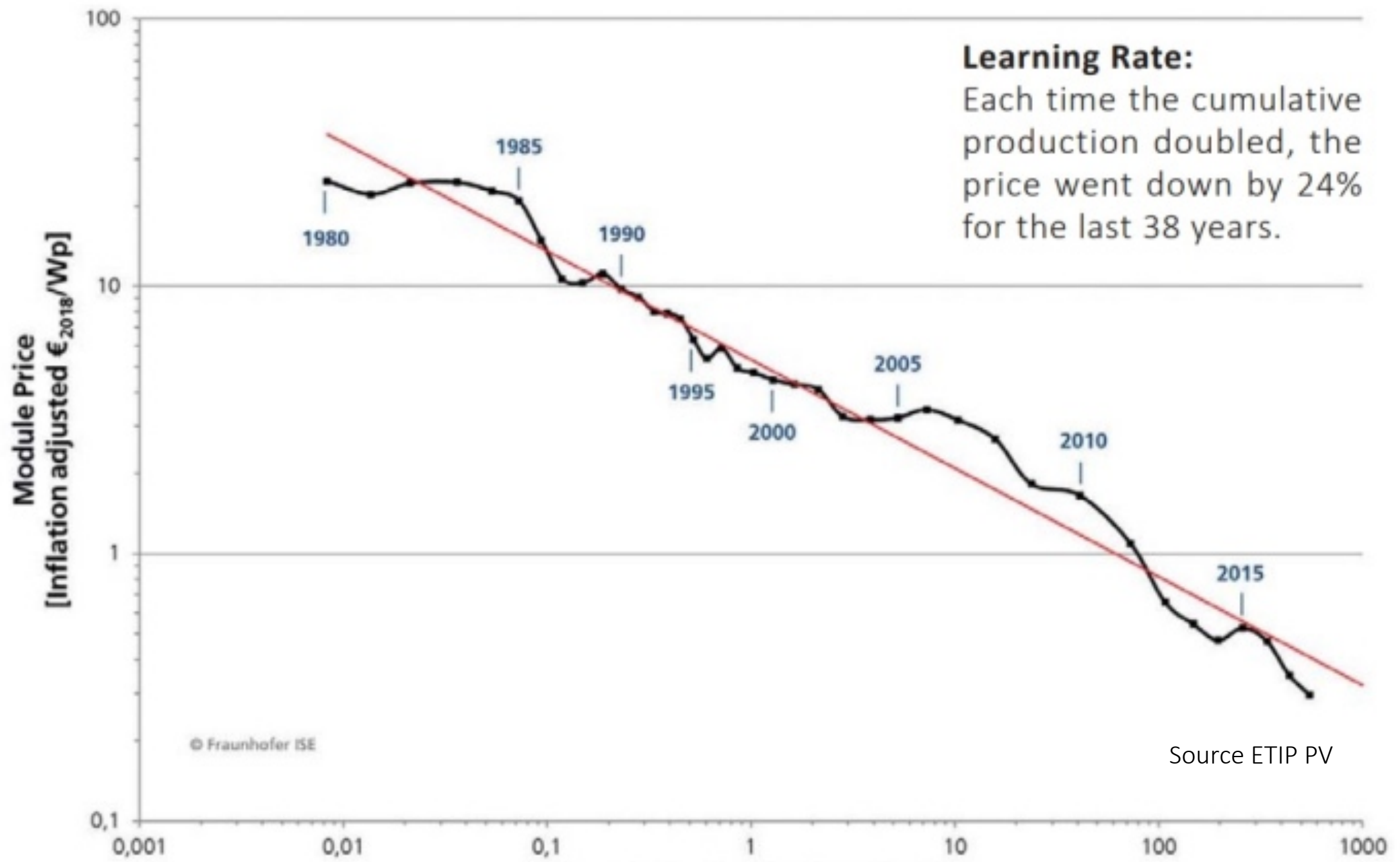
L'électrification des transports jouera un rôle clé pour équilibrer l'offre et la demande d'énergie



Il faudra produire, transporter, installer, et recycler les panneaux solaires en utilisant de l'énergie 100% renouvelable.



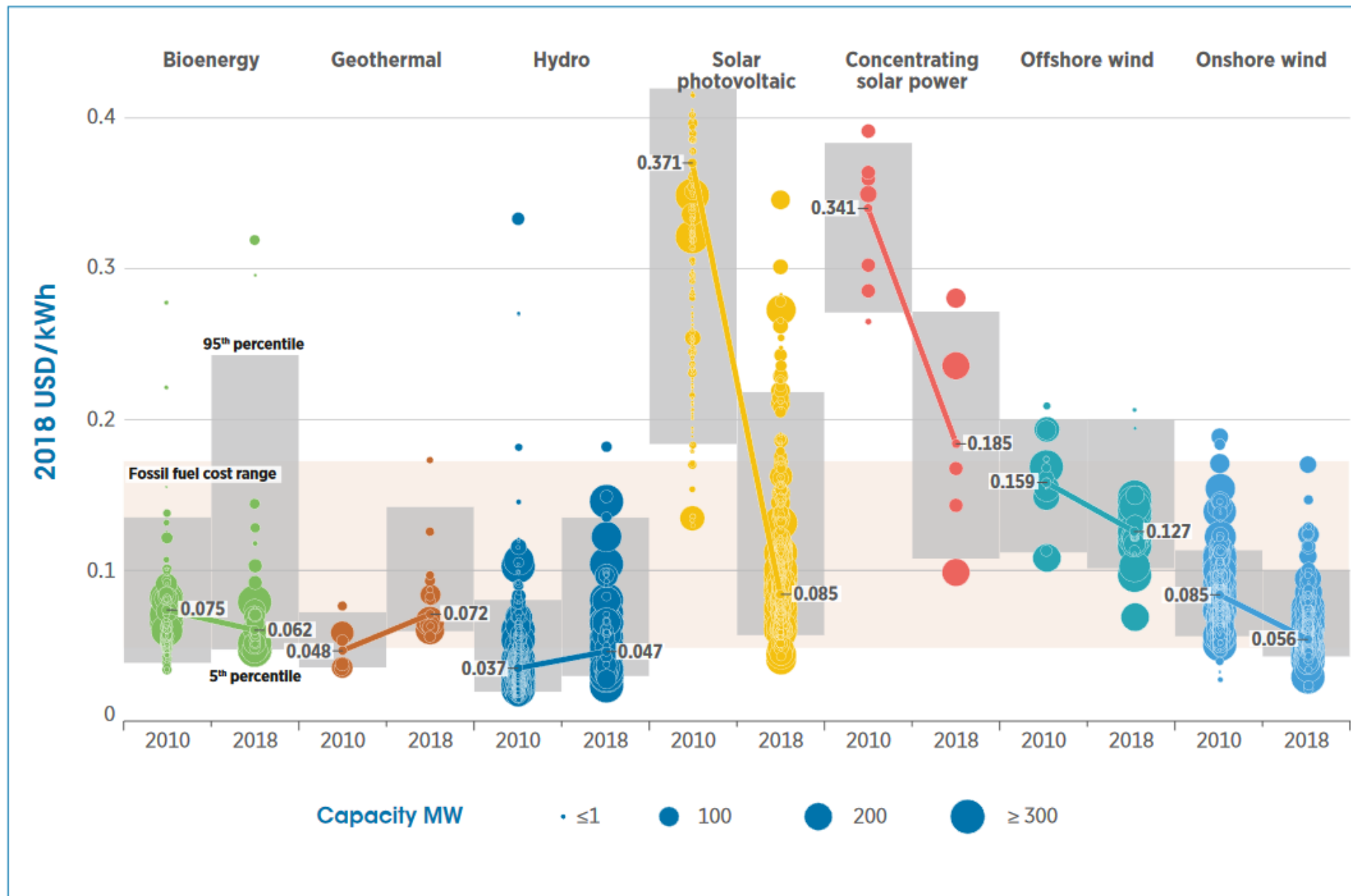
Source: California Energy Commission, staff analysis November 2018



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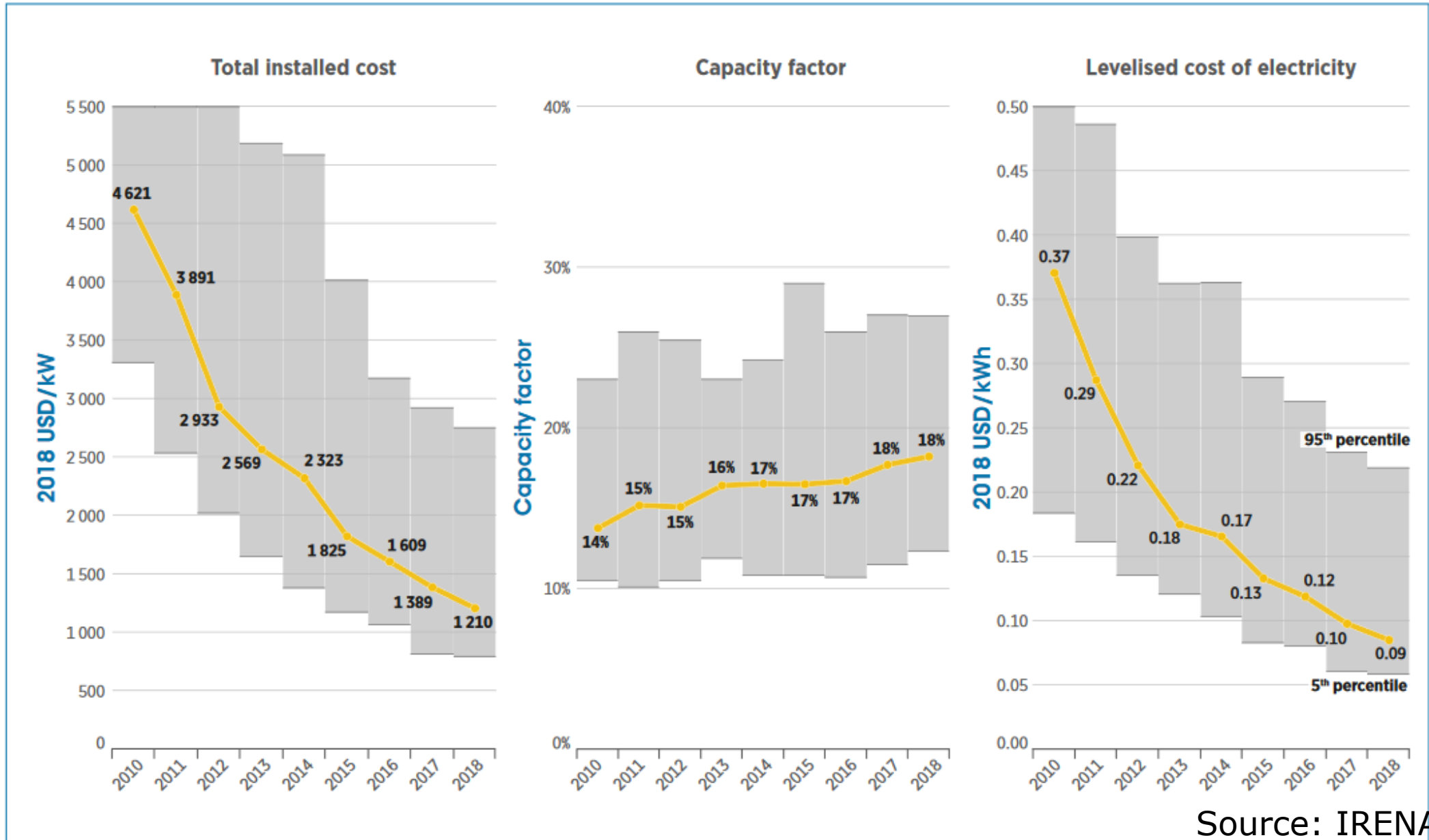
Source ETIP PV

Figure S.1 Global LCOE of utility-scale renewable power generation technologies, 2010–2018



Source: IRENA

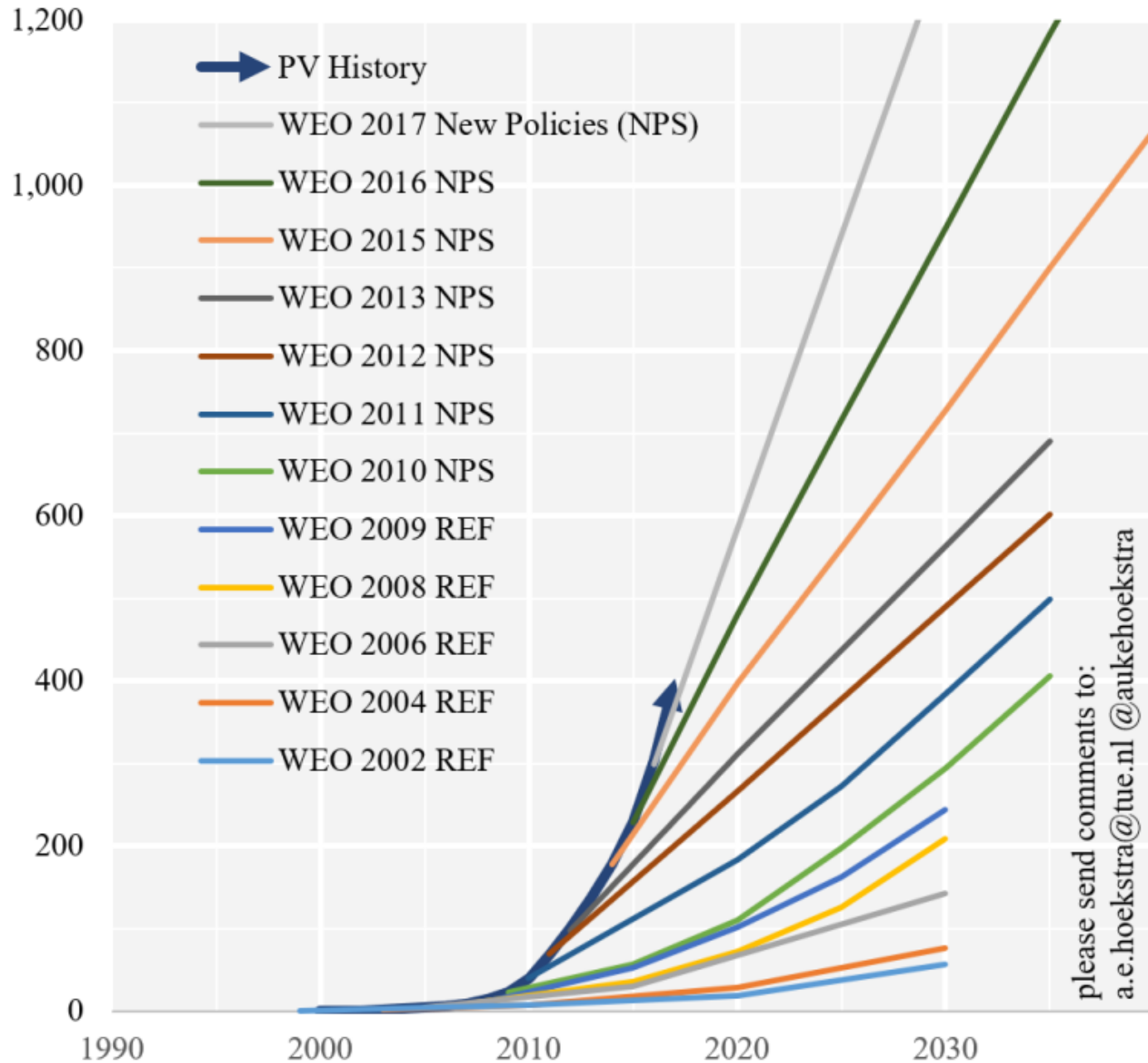
Figure S.5 Global weighted average total installed costs, capacity factors and LCOE for solar PV, 2010–2018



Source: IRENA

Cummulative PV capacity: historic data vs IEA WEO predictions

In GW of total installed capacity - source International Energy Agency - World Energy Outlook



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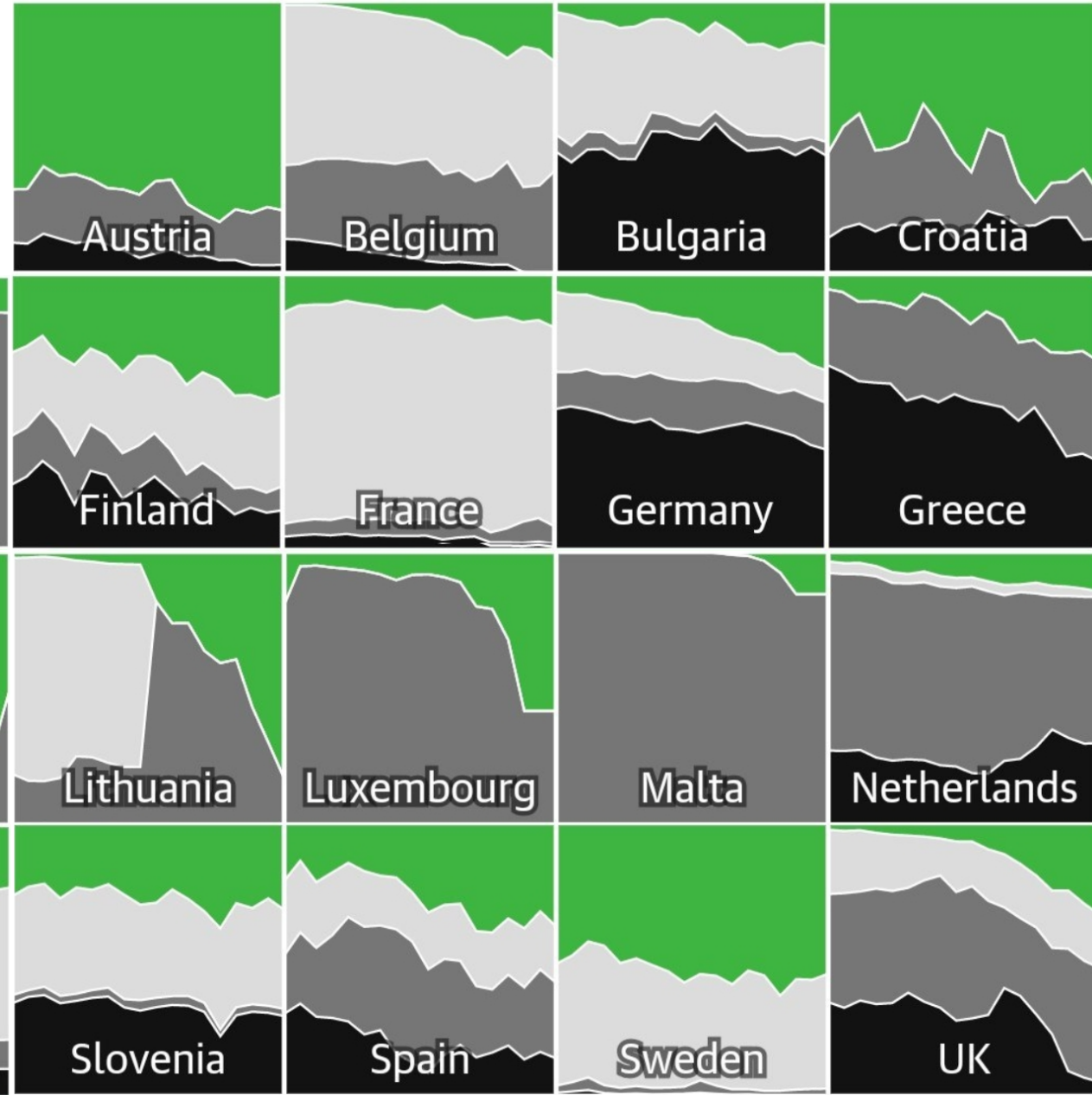
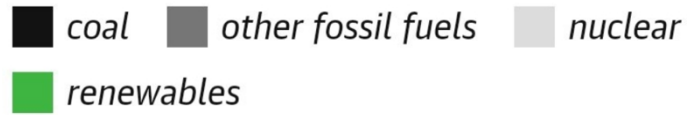
Combien coute le repassage d'une chemise avec l'énergie solaire?

2009
30 ct €

>

2019
3 ct €

Power generation by source 2008-2018





Vers 100% énergies renouvelables

Etats / villes



Michigan Bill Seeks **100% Renewable Energy** By 2050

Solar Industry - Oct 18, 2018

Michigan Rep. Yousef Rabhi, D-Ann Arbor, has introduced a bill that would require all of Michigan utilities' **energy** to come from **renewable** ...

Michigan lawmaker proposes going to **100% renewable energy** by 2050

International - [MLive.com](#) - Oct 18, 2018



California Lawmakers Set Goal for Carbon-Free **Energy** by 2045

New York Times - Aug 28, 2018

California joins **Hawaii**, which passed legislation in 2015 calling for **100** percent ... Massachusetts, **New Jersey**, **New York** and Washington, D.C., are also ... Mr. de León has said about the legislation, designated Senate Bill **100**. ... "California embraces **renewable energy** for economic and job creation ...

Hawaii Utility's 100% Renewable Energy Plan Gets the Green Light ...

<https://www.greentechmedia.com/.../hawaiian-electric-100-renewable-energy-plan-gre...> ▼

Jul 19, 2017 - **Hawaiian** Electric Companies, tasked with powering multiple island grids with **100** percent green **energy** by 2045, has finally secured regulator ...

Corporations



SONY



Google



Schneider
Electric



Horizon 2020

2012 - 2019

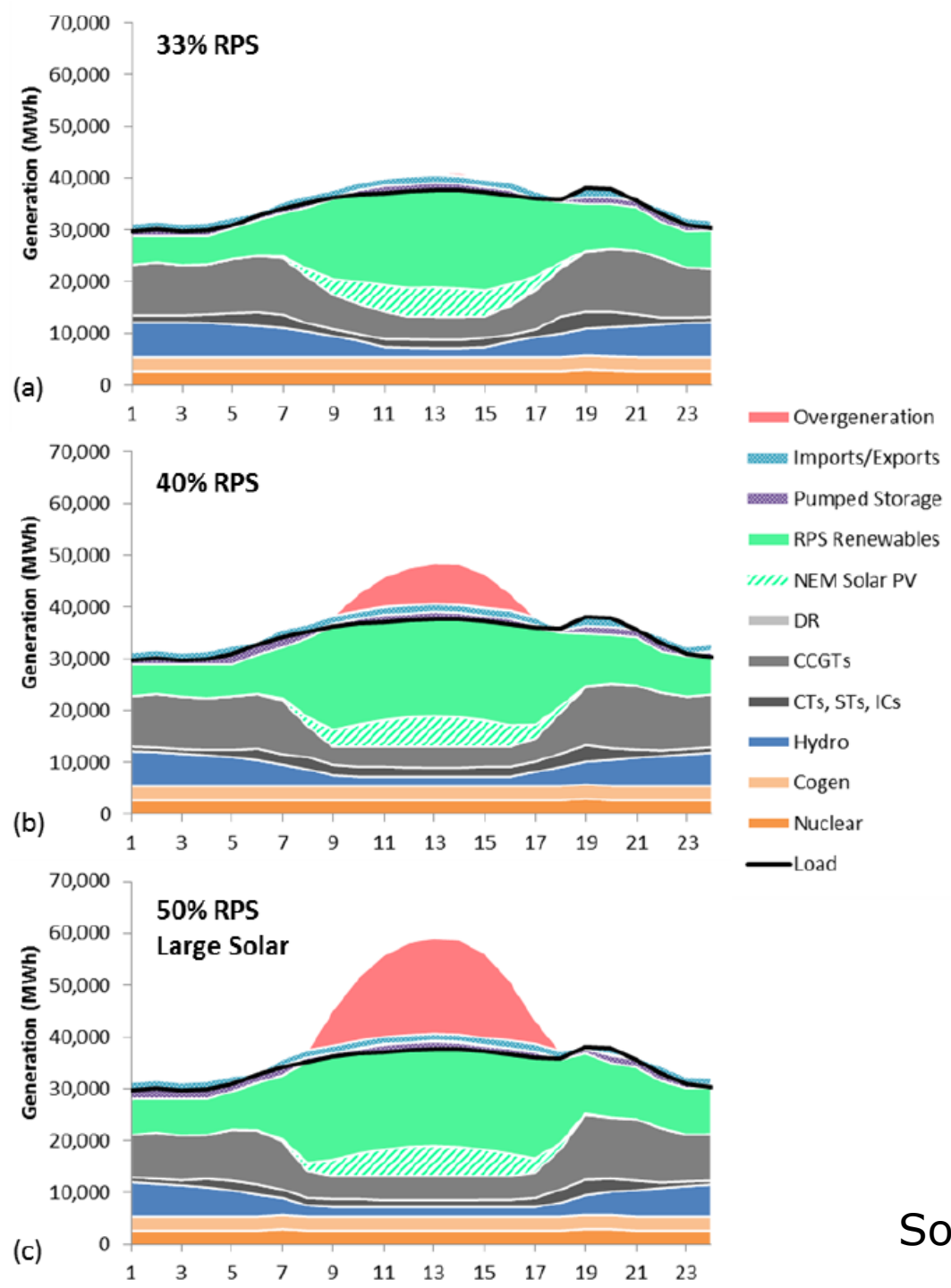
79 BN€

Horizon Europe

2021 - 2027

100 BN€

Rôle clé du stockage 20 GW d'abondance solaire



Source: E3

Véhicules électriques

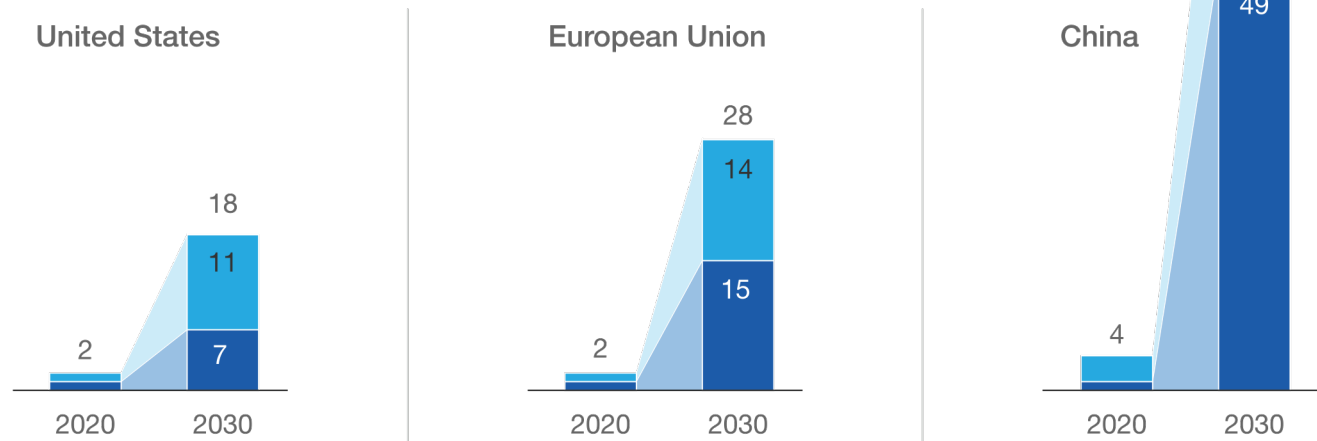


80% vides
95% stationnaires

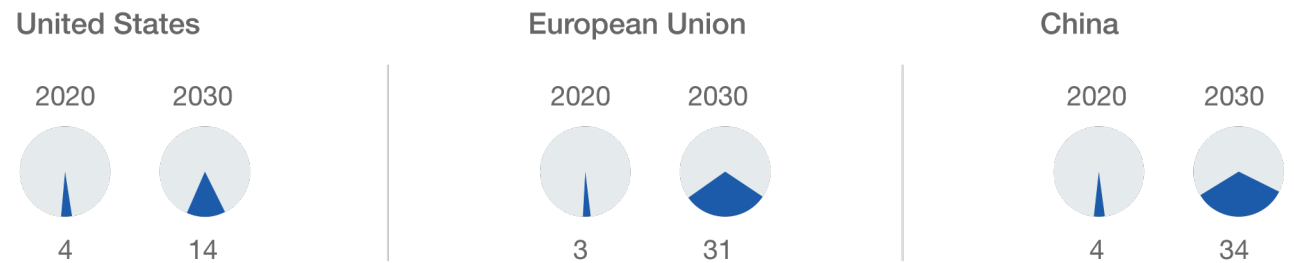


Electric-vehicle adoption base case, million

■ Battery electric vehicle
■ Plug-in hybrid electric vehicle



Electric-vehicle adoption base case, % of sales



Source: Timothy Papandreu

Year 1900 → 1 motor vehicle

Year 1913 → one horse & carriage

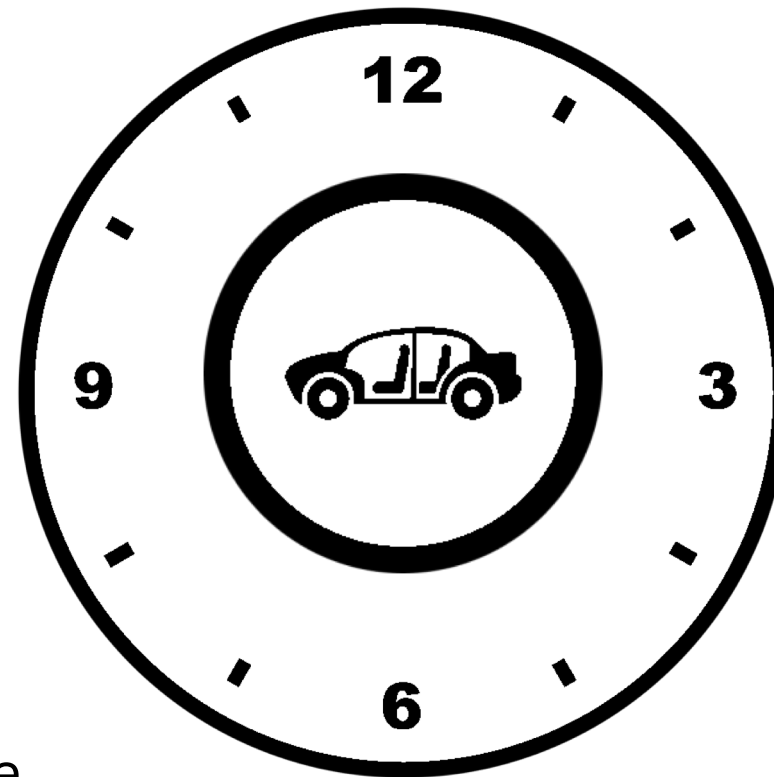


Connecter transports & energy



Charge 100% renouvelable

Transports de passagers



Gestion de facture énergétique

Régulation de fréquence

Utilisation de l'énergie solaire

Transports de passagers



Charge intelligente

Coûts énergétiques prévisibles



100% renouvelables

Récompenses et communauté

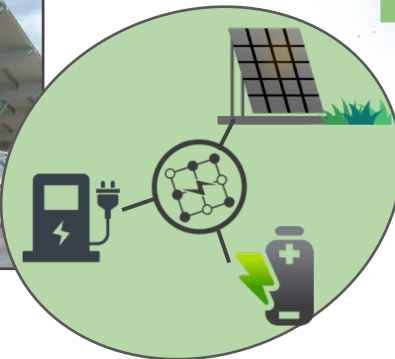
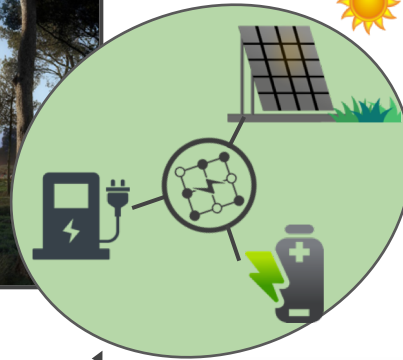
Accès au marchés de l'énergie

Solarcamp avec SNCF G&C

Partenaires



Gare TGV
Aix-en-Provence



Bovlabs



token exchange



EV charge/discharge



Merci

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25/06/2019

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