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**Transition to a Low Carbon and Climate Resilient Economy :
The 2020 Orange Commitment and Methodology**

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The 2020 Orange Commitment Context

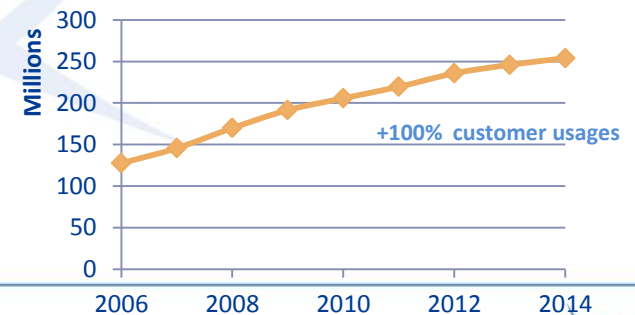
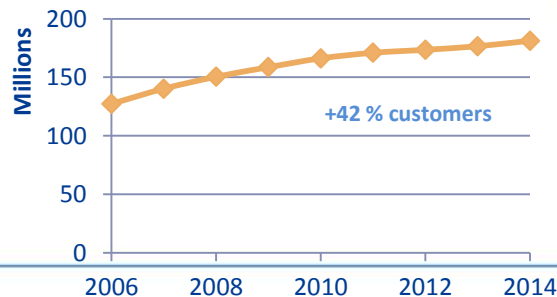
- Since the 20th century to the 21 century :a new digital world after an hold Industrial world
- - in 2008 start up of smartphones, bookcases, home computers, smart cities... and now connected thinks . **ICTs are now everywhere** in all sectors and activities.



- - ICTs generated more and more **usages** , ours customers have now many usages.



- - We are growing rapidly : number of customers, usages, networks ...New commitment take into account those new parameters and economic factors



The 2020 Orange Commitment

- Our Commitment :
 - *“Since new generation of devices drives many new customers' usages in all sectors and activities, Orange commits to reduce by 50% its CO2 emissions per customer-usages in 2020 (base line 2006)”**
 - *announced for the COP 21 include at the LPAA initiative in the NAZCA platform with CDP questioner and
 - to be published in 2016 CSR report.
-
- We implement a methodology and KPI
 - AA 1000 : materiality, inclusivity, responsiveness



Deloitte.

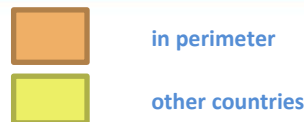
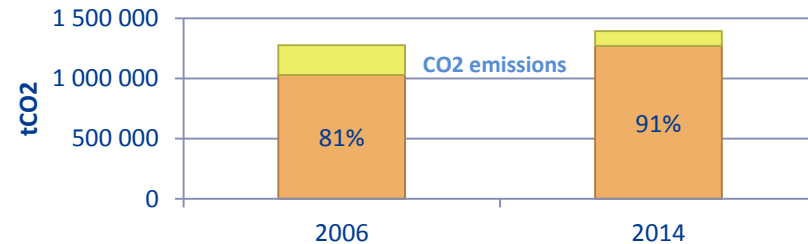
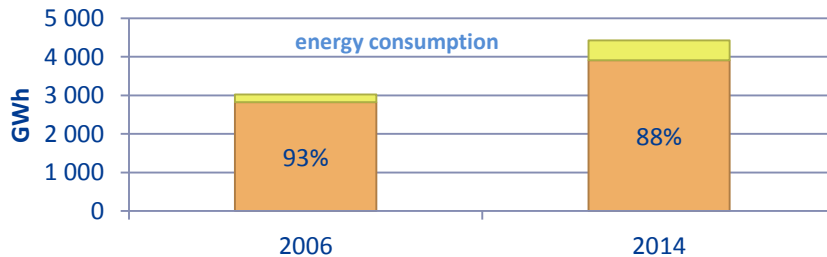
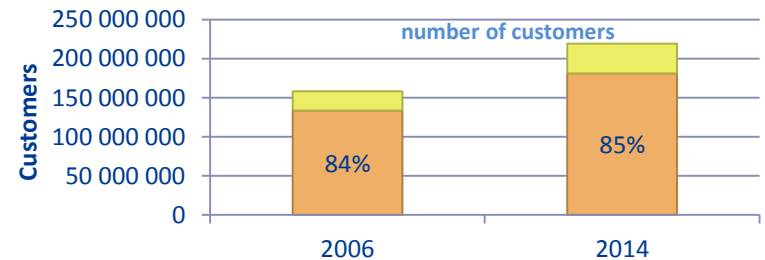
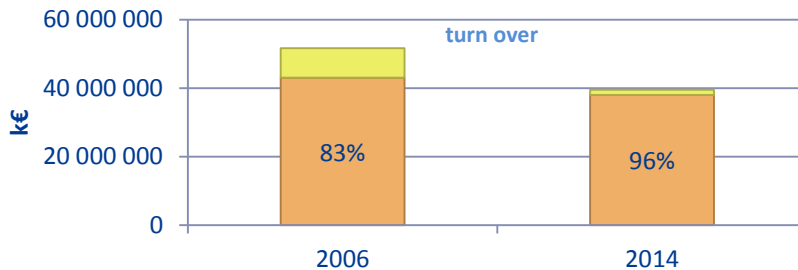
The 2020 Orange Commitment Methodology

- Perimeter : scope 1,2*

(ADEME methodology / ITU L 1420)




- 10 countries : EME :France, Belgium, Spain, Poland, Romania, Slovakia AMEA : Ivory-Coast, Egypt, Jordan, Senegal / + OBS
- Methodology : a constant perimeter, Intensity target, we conserve a full countries reporting (30) , for Materiality, awareness , ... to be audited.

Deloitte.



The 2020 Orange Commitment Methodology

- Which consumption shall be taken into account: Orange operated sites ' ? Orange equipment's (on Orange or Third Party sites) ? Associated with Orange's customer internet traffic and content (on Orange or third party equipment)? etc..
- 4 methods have been studied: based on charged energy; Operation and equipment control; customer consumption, Financial control & invoicing
- The chosen method is the method based on charged energy consumption.

Method's name	Method based on charged energy
Principle	Estimated energy was invoiced or notified to Orange (As a value (€/time interval) or a consumption (Wh/time interval))
Case study <ul style="list-style-type: none"> • Third party equipment hosted by Orange (ex:DSLAM) 	 Taken into account Except if the equipments energy consumption is charged to third party
<ul style="list-style-type: none"> • Orange equipment hosted by third party providers(ex : RAN) 	 Not taken into account Except if the energy consumption is charged to Orange
<ul style="list-style-type: none"> • Orange equipment whose use is shared with third party providers (ex : MVNO, Roaming (Free), RAN sharing) 	 Taken into account

The method based on charged energy consumption was chosen for verifiability reasons:

- Data is available since the 2006 base year, with no need of hypotheses to obtain.
- A direct link with the energy charges is possible
- Future projections are possible to set and monitor a goal.

The 2020 Orange Commitment

KPI + customer usages

- customer usages :

- fixe customer usages:

- PSTN : 1
- VoIP : 1
- Internet : 1
- TV : 1



e.g.: 1 xDSL access : internet + ToIP +TVIP = 3 usages



- mobile customer usages :

- Terminal 2G : 1 (Voice)
- *Machine-to-Machine* (M2M: mostly 2G, narrowband, akin to voice service) : 1 (Voice)
- PC or Tablet PC (3G ou 4G) : 1 (Data)
- Smartphone (3G ou 4G) : 2 (Voice et Data)

e.g: 1 smartphone 3G = 2 customer usages



- - **KPI *= SUM CO2 emissions / Sum customer usages**

- * on the perimeter 10 countries + OBS and using methodology

Transition to a Low Carbon and Climate Resilient Economy

- -The case study : 2020 Orange commitment could be a contribution to ITU commitment for ICTs
- - Intensity target (usages customer ?) and methodology could be enter in ITU standardization program ?

• **Thank you !**













Appendix

- methodology



Appendix – Consumption evaluation

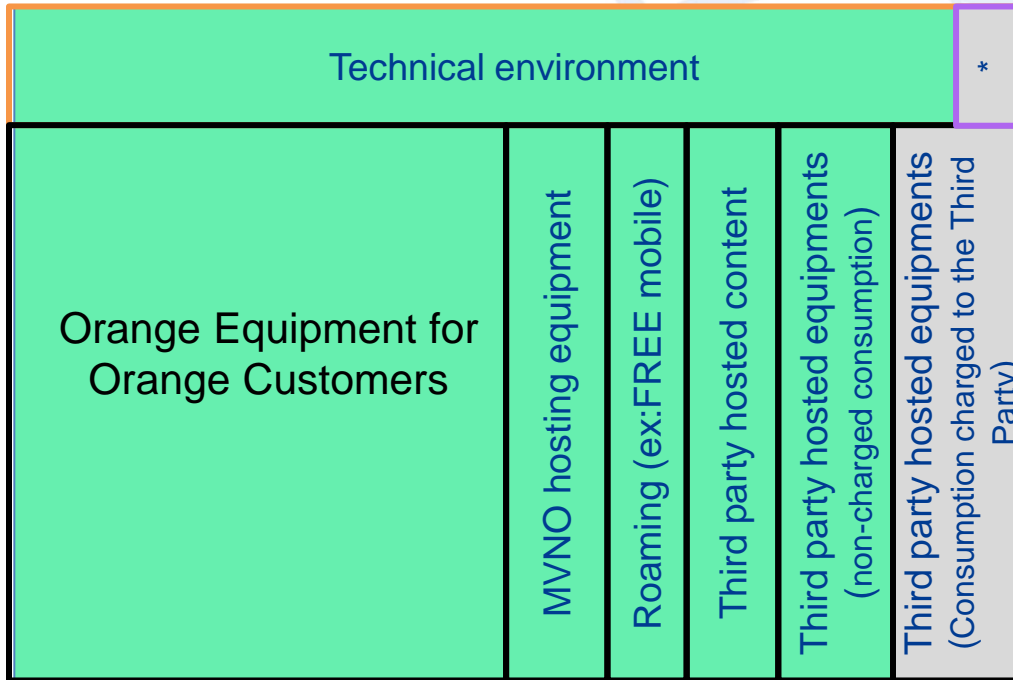
(1/3) 4 methods have been studied...

Method's name	Method based on charged energy	Operative and equipment control	Client consumption	Financial control & invoicing
Principle	Estimated energy was invoiced or notified to Orange (As a value (€/time interval) or a consumption (Wh/time interval))	Estimated energy only encompasses equipment owned and controlled by Orange	Estimated Energy is the share destined to Orange direct customers	Estimated energy is the energy consumed by Orange's equipments that has been charged to the group.
Case study <ul style="list-style-type: none"> Third party equipment hosted by Orange (ex:DSLAM) 	 Taken into account Except if the equipments energy consumption is charged to third party	 Not taken into account	 Not taken into account	 Not taken into account
<ul style="list-style-type: none"> Orange equipment hosted by third party providers(ex : RAN) 	 Not taken into account Except if the energy consumption is charged to Orange	 Taken into account	 Taken into account <i>Pro rata</i> to the equipment's usage for Orange direct customers	 Not taken into account Except if the energy consumption is charged to Orange
<ul style="list-style-type: none"> Orange equipment whose use is shared with third party providers (ex : MVNO, Roaming (Free), RAN sharing) 	 Taken into account	 Taken into account	 Taken into account <i>Pro rata</i> to the equipment's usage for Orange direct customers	 Taken into account Except if the equipment is hosted by a third party and the energy is not charged to Orange

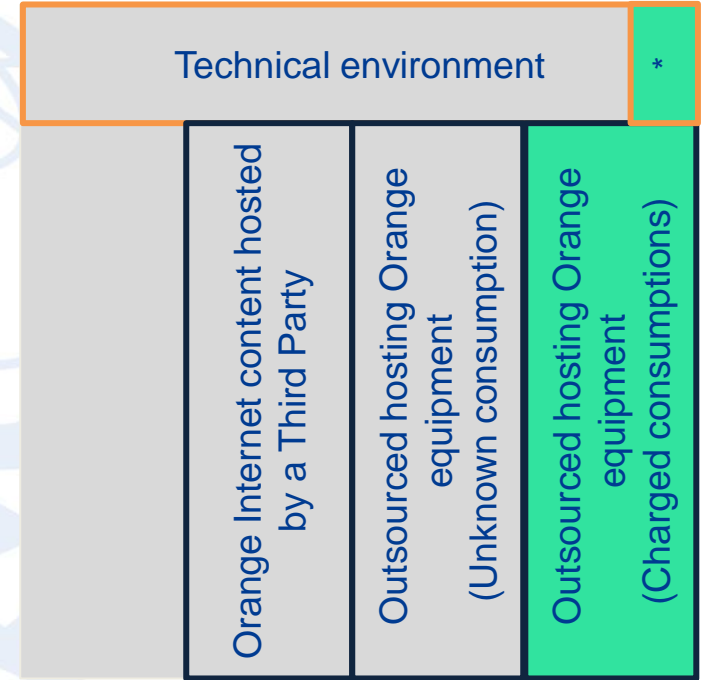
Appendix: Consumption evaluation

(2/3) What is estimated in the charged energy consumption method?

Orange Networks and IT Services



Third Party Networks and IT Services



 Energy consumptions taken into account

* Equipment's energy consumption can be charged by a part or the whole of the technical environment

Appendix : Consumption evaluation

(3/3) What is estimated in the charged energy consumption method?

✓ Consumptions taken into account

- Technical sites consumption
- Consumption of composite sites
Technical + Services

Third Party contents and equipments hosted by Orange are taken into account (except if their energy consumption is charged to the Third Party)

- Outsourced equipments whose associated consumption or cost are known as the contract specifies that consumption is to be reported to Orange*

It is advised when outsourcing equipment for contracts to include such terms to enable feedback on energy consumption

⊘ Consumptions not taken into account

- Outsourced equipment and contents whose energy consumption is unknown
- Third Party equipment hosted by Orange whose consumption is charged to the former*

- Equipment consumptions can be charged by a part or the whole of the technical environment

**Appendix : how to estimate « indirect » client usages?
(1/2) Principles**

- « Indirect Customers » are other operators' clients using Orange infrastructure (Network, IT or technical environment) whose energy consumption is not charged to the former. It encompasses
 - For landline networks : partially unbundled xDSL customers, unbundled xDSL accessing the service through a Third Party operator DSLAM hosted by Orange, Fibre internet customer accessing to the network through a third party operator's OLT hosted by Orange
 - For Mobile networks : Third party operator's client's for which Orange provides mobile services access (in the frame of MVNO or national / international roaming agreements) with whom Orange share a part or the whole of its network.
- Indirect client usages are estimated : their accounting is detailed in the Appendices

Appendix : how are indirect client usages estimated ? (2/2) calculus

Landline	<ul style="list-style-type: none"> We calculate X = average number of client usages from Orange Fibre or DSL customers Assuming this number is the same for unbundled customers <p>$N_{\text{indirect landline usages}} = X * N_{\text{unbundled customers}}$</p>
MVNO and roaming	<p>We know</p> <ul style="list-style-type: none"> Yearly voice traffic processed by Orange The $Y\%$ of this generated by indirect customers The number of Orange direct customer with a Voice service (2G, 2G/3G or 2G/3G/4G) <p>We estimate the number of Equivalent Voice Customers as</p> <p>$N_{\text{indirect equivalent voice mobile customers}} = (\text{Orange voice traffic} * Y) / (1-Y)$</p> <p>We deduce the the number of client usages from indirect clients thanks to he hypothesis that 1 indirect client accounts for 1 client usage (Voic) :</p> <p>$N_{\text{indirect_Mobile_Usages}} = N_{\text{indirect equivalent voice mobile customers}}$</p>
Mobile	<p>Orange's partner operator's clients may be considered to be indirect customers, generating traffic on Orange radio ressources which supports taking into account their client usages</p> <p style="padding-left: 40px;">For voice services</p> <ul style="list-style-type: none"> We know T the number of Orange direct clients terminal devices We assume the $X\%$ ration of the voice traffic processed by Orange generated form the sharing's indirect clients to be available We estimate the number of equivalent « Voice » client usages: <p style="padding-left: 80px;">$N_{\text{voice_sharing_usages}} = (T * X\%) / (100\%-X\%)$</p> <p style="padding-left: 40px;">For Data</p> <ul style="list-style-type: none"> We know D the number of Orange direct customer's 3G or 4G devices. We assume the $Y\%$ ratio of the data traffic processed by Orange generated form the sharing's indirect clients to be available We estimated the number of equivalent « Data » client usages : <p style="padding-left: 80px;">$N_{\text{data_sharing-usages}} = (D * Y\%) / (100\%-Y\%)$</p>