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# Network-Driven DSM Programs

1. **The Transmission Network-Driven DSM Project in the French Riviera**
2. **Distribution Network-Driven DSM example**



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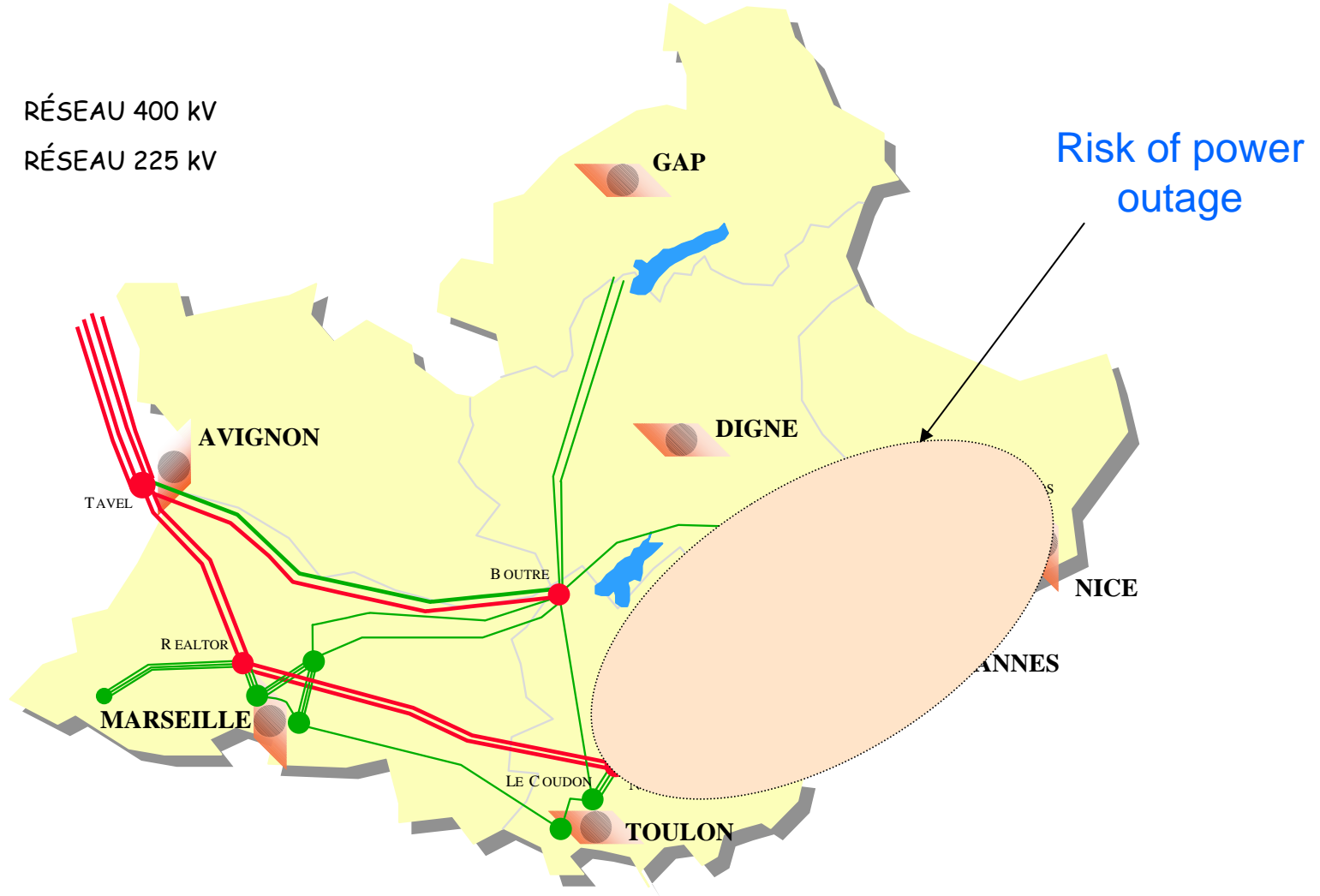
# Transmission Network-Driven DSM Project in the French Riviera

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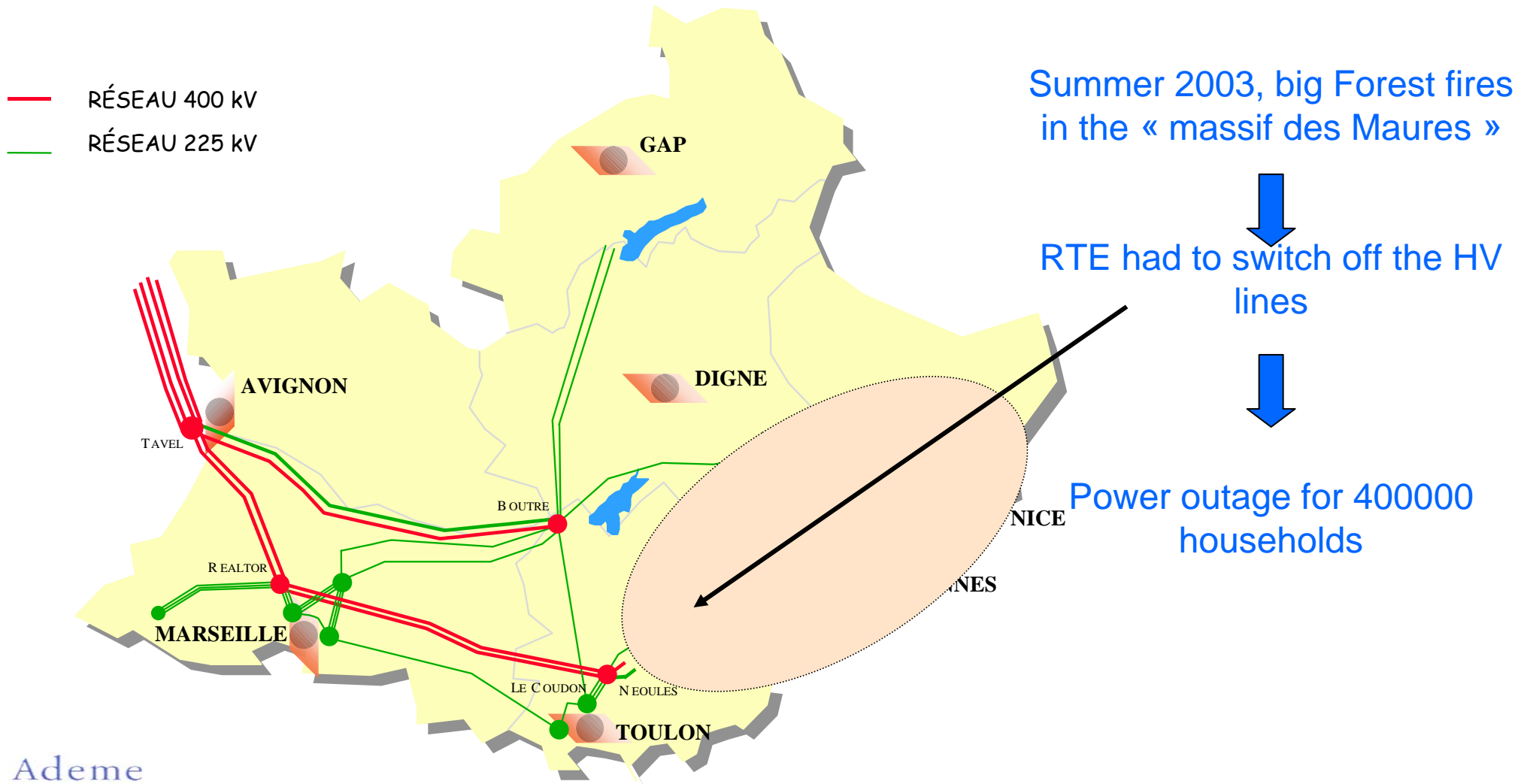


# Fault risk in winter : N-1

- RÉSEAU 400 KV
- RÉSEAU 225 KV

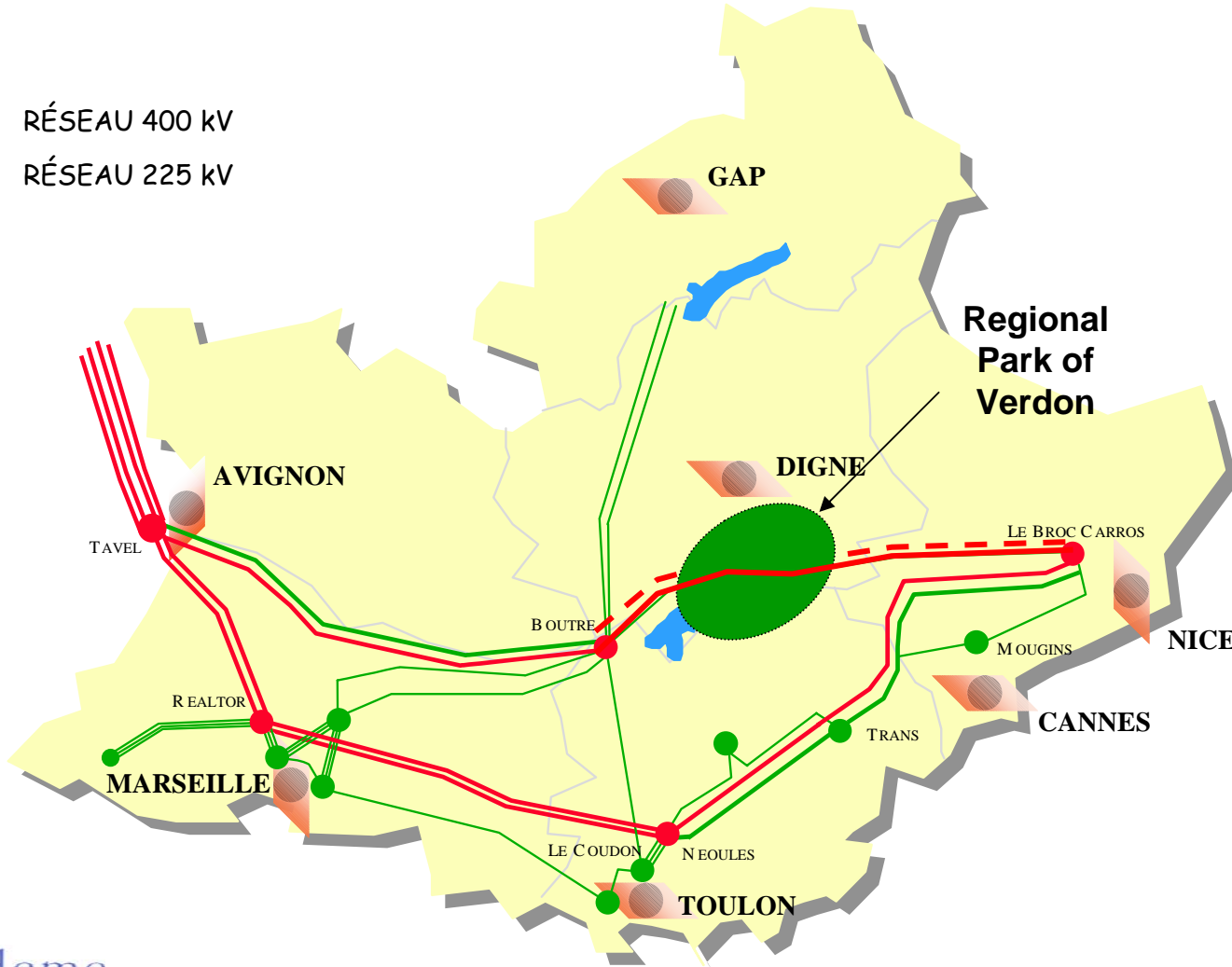


# Fault risk in summer : N-2



# The initial project to solve the problem : a new 400 kV line (2 circuits)

— RÉSEAU 400 kV  
— RÉSEAU 225 kV



- Project born in the eighties
- Strong oppositions to this project
- In 1998, a public debate is organized
- In 2000, the government decide an alternative solution : reinforcement of the existing 225 kV line by a 400 kV line (1 circuit) and implementation of an ambitious DSM and DG program to stop the increasing of consumptions

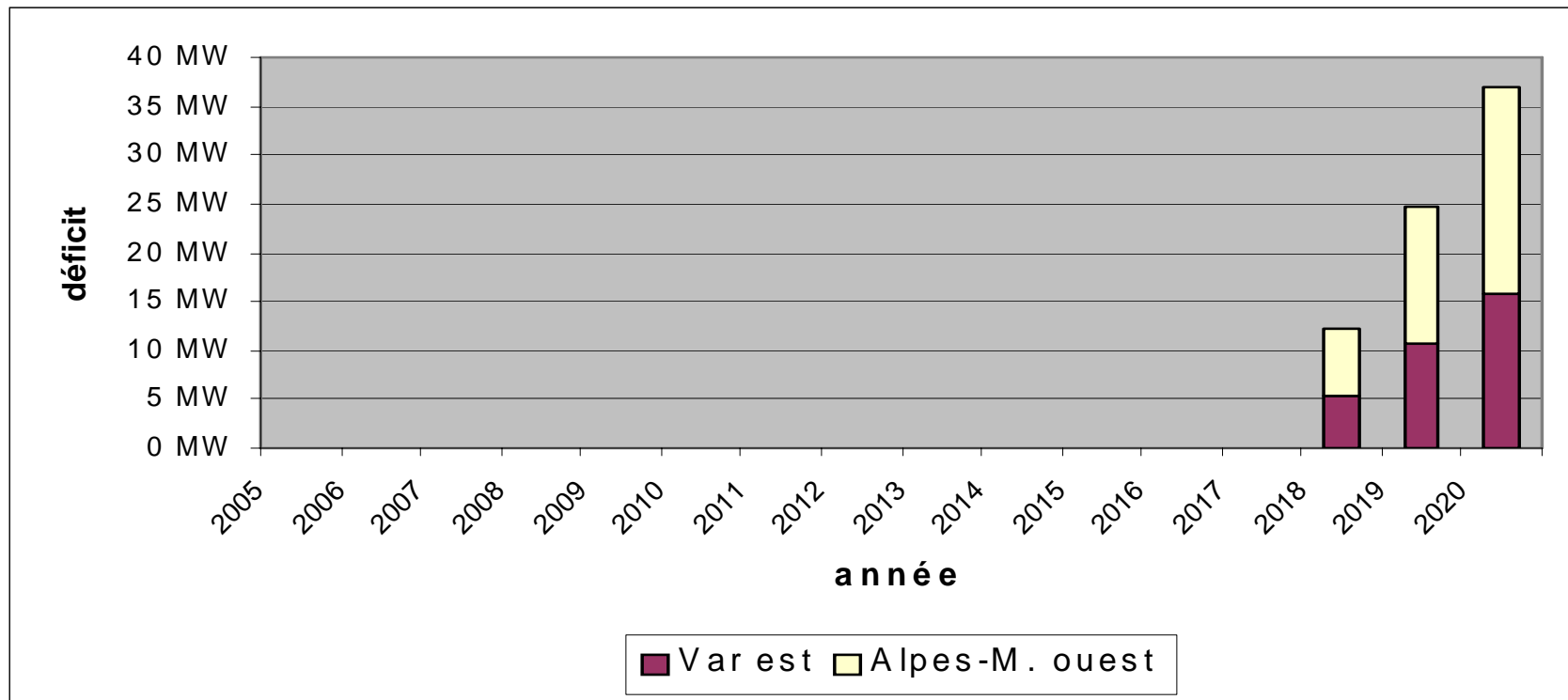


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- **Objective of the DSM & DG program :**
    - delaying the construction of a new transmission line after 2020
    - Implementing of the major part of measures before 2006
  - **First stage : studies in 2001 with the objectives :**
    - To know the evolution and the structure of the demand
    - To quantify the level of capacity needed in 2020 in order to avoid constraints, with the new single line build in 2005
    - To quantify the potential of DSM & DG
    - To describe a detailed program of DSM & DG measures



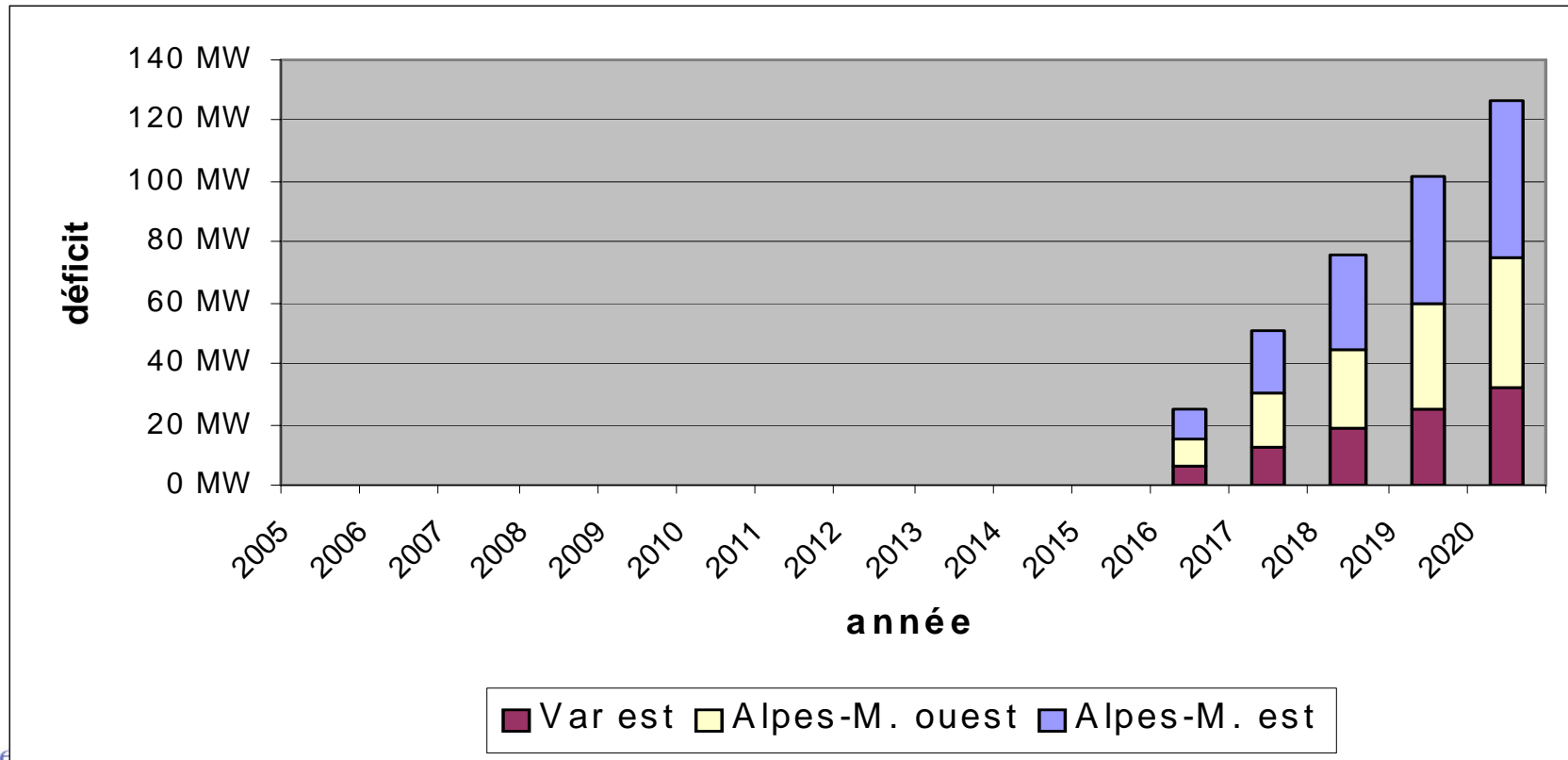
# Fault risk N-1 in winter with the new single line

- With the new single line build in 2005, constraints reappear in 2018
- The objective of the DSM&DG program to avoid a new line before 2020 is 35 MW in winter



# Fault risk N-2 in summer with the new single line

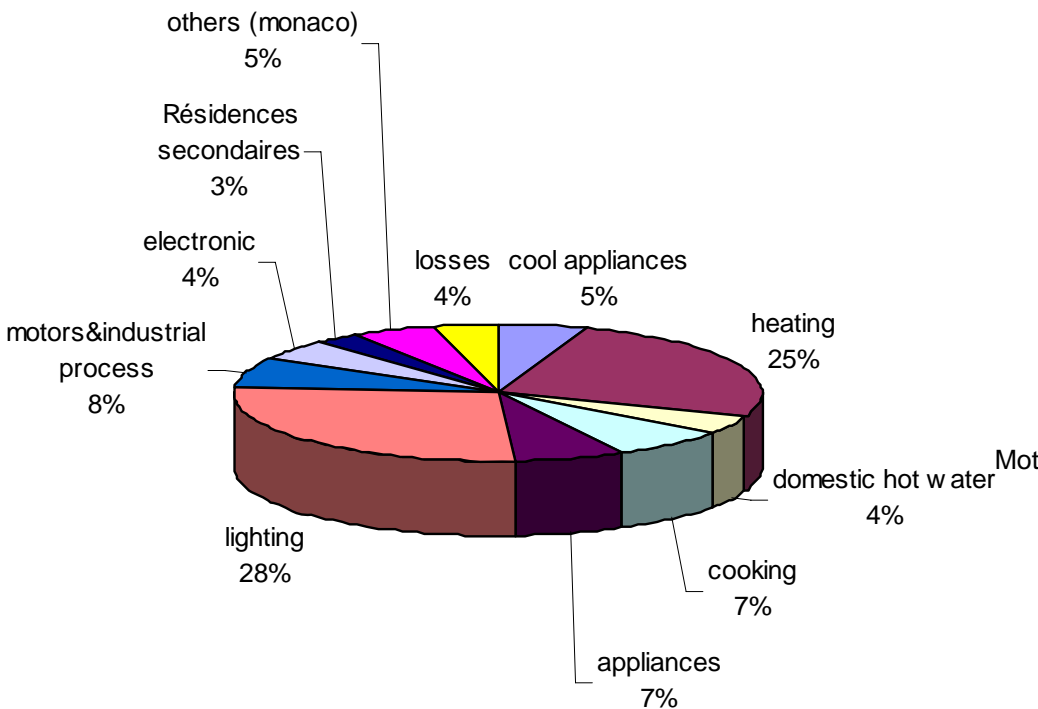
- With the new single line build in 2005, constraints reappear in 2016 in summer
- The objective of the DSM&DG program to avoid a new line before 2020 is 130 MW in summer



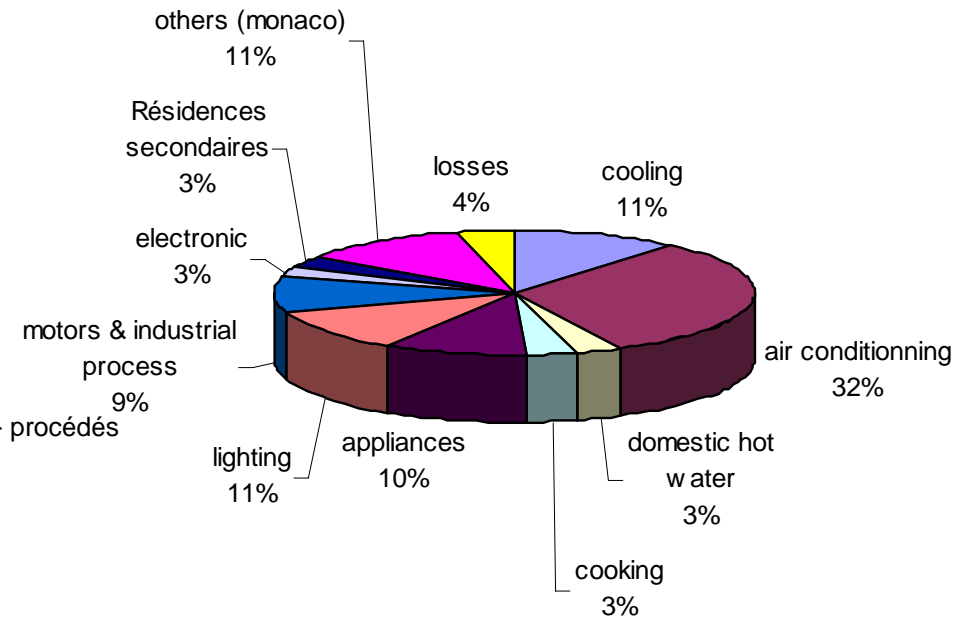


# Structure of peak-load in 2000

## Winter peak : 19h00



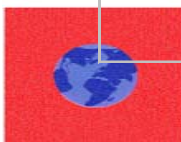
## Summer peak : 13h00



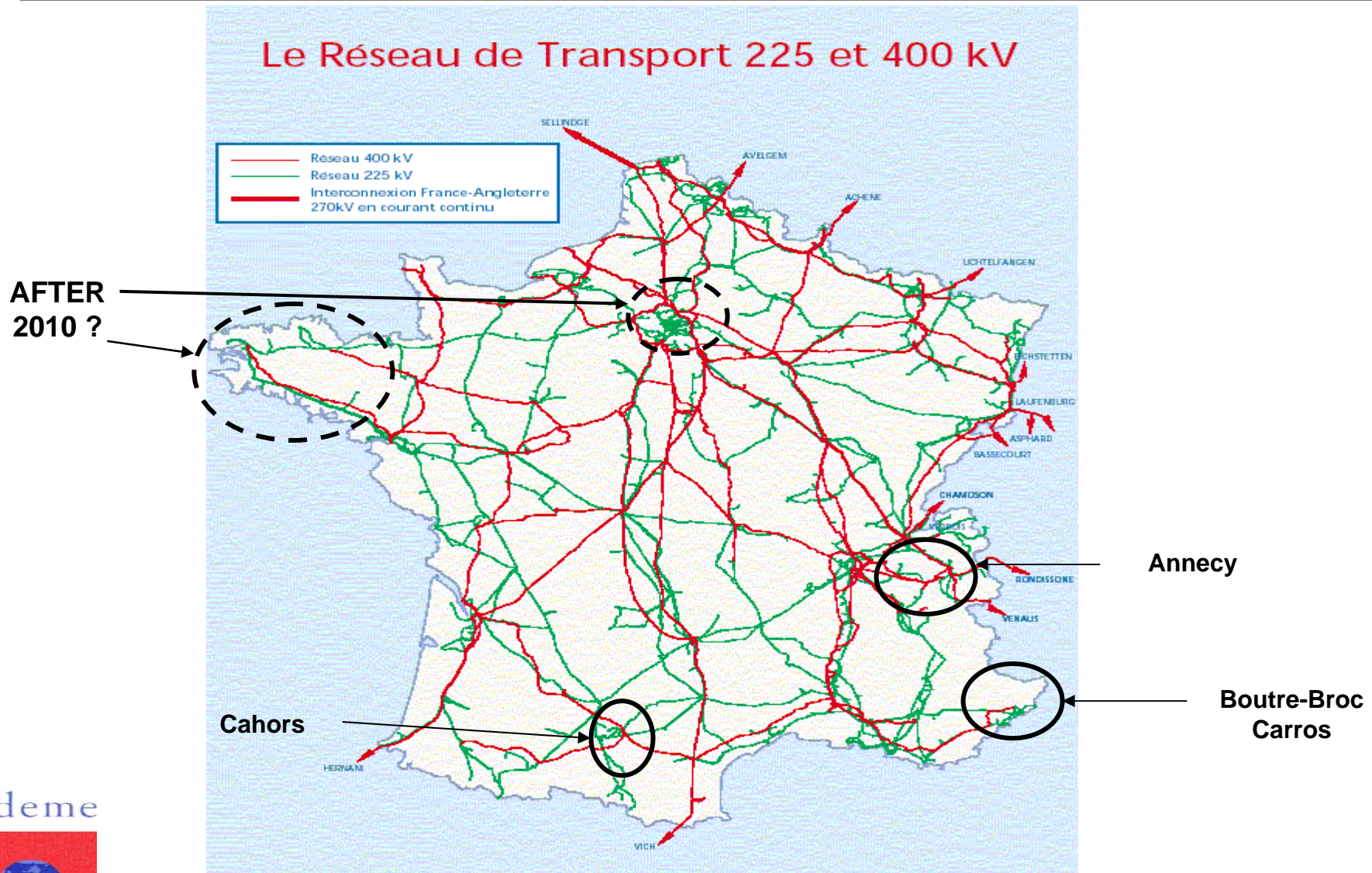
# Impact of each DSM & DG measure

	impact winter peak MW	impact summer peak MW	impact consumption GWh	public funding M€
communication, information				2,9
awareness, training of engineering departments, installers				3,6
State, local authorities, institutional, EDF, ADEME Are a model of good energy management	26	5,5	52,5	4,6
Specific measures for new residential and tertiary buildings	1,2	0,1	2,5	7,6
Large dissemination of CFL in social sector	2,3	0,5	6	2
Promotion of efficient lighting in tertiary sector	24	12	72	1,8
Promotion of CFL & white goods	57	8	115	3,6
Rehabilitation in domestic and tertiary sector	41	11,5	125	9,1
Rehabilitation in tourism sector	3	2,3	9	2,6
Domestic hot water		15	5	3,3
Wood heating	8		7	2,1
Specific measures for big I&C consumers	16,5	11		2,3
CHP, biogas, hydro	45	23		3
PV	0	0,3		0,9
evaluation				3
<b>Total</b>	<b>224</b>	<b>89,2</b>	<b>394</b>	<b>52,4</b>

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# Transmission network capacity constraints identified



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# Distribution Network-Driven DSM example

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# Rural distribution network-driven DSM project

## Project in Maine et Loire

4 LV cables with a strong constraint (voltage drop)

Commune	number of customers	number of 3 phase voltage feeders	Buildings	
			Housing	Agriculture
La Jumelière	8	6	7	3
Coron	6	4	6	2
Chanteloup	10	4	10	1
Gennes	3	3	3	3
<b>Total</b>	<b>27</b>	<b>17</b>	<b>26</b>	<b>8</b>



# Rural distribution network-driven DSM project

## a division of disturbances into 10

	number of events		GAIN %	total duration of events (minutes)		GAIN %
	before DSM measures	after DSM measures		before DSM measures	after DSM measures	
<b>La Jumelière</b>	11313	699	94	3514	21	99
<b>Coron</b>	1469	544	63	953	86	91
<b>Chanteloup</b>	3049	81	97	1092	6	99
<b>Gennes</b>	1054	41	93	1401	9	98

distribution of DSM measures financings			TOTAL COST OF AVOIDED REINFORCEMENTS : 158818 € inclusive of tax
	€ inclusive of tax	%	
<b>FACE ET SIEML</b> (before the meter)	10247	15	DURATION OF REINFORCEMENT POSTPONING :  7 to 10 years
<b>EDF/ADEME</b> (agreement)	24145	34	
<b>ADEME</b>	29361	41	BENEFIT OF THE PROGRAM : 7978 € inclusive of tax
<b>CUSTOMERS</b>	7287	10	
<b>TOTAL COST of MEASURES</b>	71040		



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# Incentives and Barriers

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# Incentives and Barriers

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## ■ **Transport :**

- ☹️ **RTE who owns the network is not allowed by law to build DSM scenarii into his network planning process**
- ☹️ **RTE by law cannot be an actor of the demand side**
- ☺️ **Thanks to the agreement between RTE and ADEME, the tools used by RTE to build prevision of the demand will may be include more easily DSM scenarii**





# Incentives and Barriers

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## ■ **Distribution :**

- ☺ **The network is owned by the local authorities who finance the investment for reinforcement in rural areas, the funding is provided mainly by the council budget ⇒ the local authority is more encouraged to find alternatives**
- ☺ **Local authorities want more and more to conduct sustainable development policies in their area**
- ☺ **FACE (solidarity fund used for transferring money from urban areas to rural areas), this fund is used to finance a part of costs of reinforcement, it can be used as well to finance DSM measures if these ones are less expensive than the cost of reinforcement**



# Incentives and Barriers

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## ■ **Distribution :**

☺ Since the law of 2000, the local authorities are allowed to implement DSM and DG measures if these ones can avoid reinforcement of the distribution network

☺ Since now there are still legal barriers to implement DSM measures

## ■ **Transport and Distribution :**

☺ Future french white certificates system : possibility to get a bonus according to the geographical area (has to be precised by decrees)

